National Defence   Défense nationale

Process Alignment: An Assessment of DND Project Approval Process in the 2019 Project Approval Directive

Major Ronald R. Balkaran

Canada

PROCESS ALIGNMENT: AN ASSESSMENT OF DND PROJECT APPROVAL PROCESS IN THE 2019 PROJECT APPROVAL DIRECTIVE

By Major R.R. Balkaran

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LIST OF ACRONYMS

ACAT – Acquisition Category

CADMID – Concept, Assessment, Development, Manufacture, In-Service, Disposal

CAF – Canadian Armed Forces

CASG – Capability Acquisition and Sustainment Group

CDG – Capability Development Group

CDS – Chief of Defence Staff

DCB – Defence Capability Board

DE&S – Department Equipment and Support

DLO – Defence Logistics Organization

DM – Deputy Minister (of National Defence)

DMO – Defence Materiel Organization

DND – Department of National Defence

DOD – Department of Defense

EMD – Engineering and Manufacturing Development

FPR – First Principles Review

GoC – Government of Canada

HLMR – High Level Mandatory Requirements

IAC – Investment Approvals Committee

ICD – Initial Capabilities Document

IIP – Integrated Investment Program

IRMC – Investment and Resource Management Committee

IRPDA – Independent Review Panel for Defence Acquisitions

ISED – Innovation, Science and Economic Development

JCIDS – Joint Capabilities Integration and Development System

MDA – Milestone Decision Authority

MND – Minister of National Defence

MoD – Ministry of Defence

MTA – Multi Tier Acquisition

NSC – National Security Committee of Cabinet

OPMCA – Organizational Project Management Capacity Assessment

PAD – Project Approval Directive

PAP – Project Approval Process

PAPR – Project Approval Process Renewal

PCRA – Project Complexity and Risk Assessment

PM – Prime Minister

PMB – Programme Management Board

PMBoK – Project Management Body of Knowledge

PPBE – Planning, Programming, Budgeting and Execution

PSPC – Public Services and Procurement Canada

PWC – Standing Parliamentary Committee on Public Works

ROM – Rough Order Magnitude

SRB – Senior Review Board

SSE – Strong, Secure, Engaged

TB – Treasury Board

TMRR – Technology Maturation and Risk Reduction

URD – User Requirements Document

USD (A&S) – Under Secretary of Defense (Acquisition and Sustainment)

VCDF – Vice Chief of the Defence Force

VCDS – Vice Chief of Defence Staff

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ABSTRACT

Similar to other nations, the government of Canada and the Department of National Defence have been scrutinized for project delays and cost overruns in defence acquisitions. In its efforts to better streamline processes and achieve efficiencies, the Project Approval Process Renewal initiative was launched in 2012 which implemented modifications in the 2019 publication of the Project Approval Directive. This paper aims to review and assess the processes in the 2019 publication of the Project Approval Directive and identify opportunities for consideration in future reviews.

The assessment was conducted with a comparative analysis approach using three of Canada's closest allies – the US, the UK and Australia. The overall defence acquisition processes were discussed and compared which demonstrated similar approaches with well-defined stages. In addition, specific factors within the process were compared including key decision points, levels of decision authority and the use of tailored process paths. This comparison demonstrated close alignment with a potential opportunity for a technology-driven process path. It also confirmed Canada's unique accountability structure for defence acquisitions. As a result, recommendations are made for better-defined capability requirements and performance measures to mitigate potential challenges faced with shared accountabilities.

The study suggests that the modifications in the latest Project Approval Directive are in the right direction for improving process efficiencies and are similar to Canada's closest allies. These improvements should be analyzed using actual project metrics to identify future areas for improvement. In addition, DND must continue to target its project management capacity in order to maintain its delegated authorities and further improve process efficiencies.

CHAPTER ONE: INTRODUCTION

Defence Acquisition has been a concern for many defence departments across the world and they are continuously challenged to better streamline complex and convoluted processes towards efficiency. This is mainly influenced by the discretionary nature of defence spending and defence organizations being one of the largest funded organizations in government. It should be noted that defence acquisition is more that the procurement process where focus is on industry and contracting mechanisms. It also includes earlier processes which include the development of capability requirements and the process by which projects are approved for procurement.[1] From a complete process perspective, defence acquisition incorporates the capability development, project approval and procurement processes. Like Canada, many allies cycle through changes in the acquisition process and organizational structure in their efforts for efficiencies. These are also influenced by different government policies however, there exists a common goal of fixing the overall acquisition and procurement system.[2] These goals and efforts towards more efficient and effective processes are influenced by two key factors. Firstly, defence departments are usually the government's largest receiver of discretionary funding and are under scrutiny to demonstrate proper use of allocated funding. Secondly, defence departments have a history of project delays and cost overruns in major defence acquisitions.

Canada's latest defence policy – Strong, Secure, Engaged (SSE) – was issued in 2017 and provided long-term funding commitment and an additional investment of $48.9 billion over

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[1] Trevor Taylor, "Defence Procurement: Overcoming Challenges and Managing Expectations," in *The Political Economy of Defence*, ed. Ron Matthews (Cambridge: Cambridge University Press, 2020), 261.

[2] Alan Williams, "Three Ways to Improve Defence Procurement," *Policy Options* (2016). Similar recommendations for improving Canada's defence acquisition process are also echoed by other experts in this field including Dr. Craig Stone and Mr. David Perry. Craig Stone, *Improving the Acquisition Process in Canada* (Calgary: School of Public Policy, University of Calgary, 2015) and David Perry, *Fixing Procurement* (Calgary: Canadian Global Affairs Institute, July 2016).

twenty years.[3] This additional investment included $33.8 billion for the acquisition of capital

assets and new capabilities for the Canadian Armed Forces (CAF). As a result, this has led to

much discussion and debate concerning the Department of National Defence's (DND) capacity

and ability to actually fulfill the mandate in SSE and deliver projects. This comes as no surprise

as the DND has been plagued by many historical and recent examples of its inability to complete

projects within time and cost. During an internal review of high-value projects in 2013, it was

identified that projects were, on average, four years late in meeting capability delivery.[4]

Although with political implications, it was highlighted in SSE that "70 percent of all projects

have not been delivered on time."[5] There is grave concern if DND cannot demonstrate process

improvements and the ability to effectively spend its allocated resources on capital assets and

capabilities. DND will continue to lose credibility in the defence acquisition domain and could

be subject to financial and contractual limitations which may further delay processes. In addition,

the necessary capabilities will not be available for field forces when and where required.

The defence policy has recognized these challenges and articulated many factors which

contribute to delays and cost overruns. These include cumbersome decision-making and approval

processes, unclear and diffused accountabilities, lack of adequate procurement training and tools,

inefficient collaboration with industry and Canadians, and inaccurate cost estimates.[6] As a result,

it also identified the need to develop measures and procedures to streamline the procurement

process. These reforms proposed a goal to "reduce departmental approval times by 50 percent,

increase contracting authority to allow 80 percent of procurement contracts to be managed

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[3] Department of National Defence, *Strong, Secure, Engaged: Canada's Defence Policy* (Ottawa: Canada Communication Group, 2017), 45.

[4] Department of National Defence, *Internal Audit of Capital Project Cost Estimation* (Ottawa: Canada Communication Group, 2013), 7050-11-42 (CRS), 6.

[5] Ibid., 74.

[6] Ibid.

internally, align innovation in the Canadian defence industry to defence procurement needs, increase transparency with industry and the Canadian public, and strengthen the procurement workforce."[7] These objectives aligned with the Project Approval Process Renewal (PAPR) initiative which started in 2012 under direction from the Vice Chief of Defence Staff (VCDS) at the time. The PAPR initiative was mandated to reduce the project approval time for internal DND processes and thereby increasing project throughput.[8]

As mentioned previously, these challenges are not specific to Canada as other nations have struggled to find better solutions and processes to become more efficient. Unfortunately, while some countries have emerged more successful than others, it has been argued that DND has "not seen improvements in this function"[9] and that "many objective measures indicate that over the last decade it has significantly deteriorated."[10] As our allies continue to evolve their respective defence acquisition processes, there may be lessons learned and opportunities for DND. A review and analysis of the different approaches can inform whether Canada is moving in the right direction with its updated Project Approval Directive (PAD) and where potential opportunities exist for future improvements.

As outlined in the PAD, the defence acquisition process in DND follows a five-step process where a capability gap is identified, becomes a project, and then delivers a capability. The steps or project phases associated with this process, illustrated in Figure 1.1 below, are Identification, Options Analysis, Definition, Implementation and Closeout.[11]

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[7] Ibid., 16.
[8] Department of National Defence and the Canadian Armed Forces, *Defence Renewal Plan* (Ottawa: Canada Communication Group, 2013), 71.
[9] Alan Williams, "Three Ways to Improve Defence Procurement," *Policy Options* (2016).
[10] Ibid.
[11] Department of National Defence, *Project Approval Directive* (Ottawa: Canada Communication Group, 2019), 32.

Figure 1.1: Project Phases in DND Defence Acquisitions

Source: Department of National Defence, Project Approval Directive, 3.

In addition to these phases, projects are subjected to a "gating framework" with pre-defined points in the process from early concept to post-implementation. They represent points in the project process where governance boards review the project status and grant approval to proceed to the next decision point or gate.[12] This gating framework and project approval process is governed by a series of boards and oversight committees. The requisite levels for the boards and oversight committees and their specific involvement are guided predominantly by the project complexity and risk assessment (PCRA). The PCRA is an assessment tool which classifies the project's complexity and risk and is necessary to determine the required governance levels for project approval and expenditure authority.[13]

The PAPR initiative proposed and developed significant modifications to the PAD version 1.1 which was published in 2019. These modifications were also informed by an independent review, conducted by KPMG, which also provided key recommendations for improvement. In addition, it identified overall business process and culture improvements for the DND. One of the key changes to the PAD is the inclusion of new streamlined process paths. These paths align project approvals, governance, documentation, and delegations in accordance with the level of PCRA. As a result, it moved away from a "one size fits all" approach for projects with an aim to reduce approval times where possible. This paper will review and assess the current project approval process in the 2019 PAD and identify areas for consideration in

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[12] Ibid., 246.
[13] Ibid., 58.

future reviews. In so doing, it will ensure any recommendations remain within Treasury Board policies and guidelines. Specific details on the procurement process and the implementation phase of the project is beyond the scope of this paper as it will focus on the approval process. However, certain elements may be discussed as they affect the overall process with respect to accountability and key stakeholder involvement.

This review and analysis will be completed in three main chapters. Chapter Two will examine the evolution of the PAD and provide a brief background on the need for change. It will then look at the PAPR initiative and recommendations from the KPMG report to better streamline the project approval process. Finally, it will highlight the key modifications to the PAD which are aimed at reducing the project approval times by 50 percent. Chapter Three will examine the equivalent project approval processes in Canada's closest allies, specifically the United States (US), the United Kingdom (UK) and Australia. It will briefly highlight key reviews and audits, recommendations for change, define the processes for approval, and highlight key factors for comparison. Chapter Four will then compare the different processes for the nations using specific comparison criteria related to decision points, levels of decision authority, and the use of tailored processes. Drawing on this analysis, this chapter will include recommendations for consideration in future reviews and iterations of the PAD.

The analysis of this paper will demonstrate that DND has made significant improvements to the project approval process specifically with the tailored process paths which should improve approval times. It will also demonstrate that the process is similarly aligned with our allies however, there are some opportunities for consideration in the future. It recommends that consideration be given to a technology-driven process path to benefit from technological advantage. In addition, drawing on an analysis of levels of authority, accountability structures

will be discussed with differences demonstrated. However, this paper will not argue a preferred

accountability structure for Canada's defence acquisitions. It will however offer areas for

consideration in communicating requirements and through performance metrics which could

better facilitate the process and avoid potential challenges due to shared accountabilities.

CHAPTER TWO: DND PROJECT APPROVAL PROCESS

General Overview

  The defence procurement process in DND, similar to other nations around the world, is complex and there have been many attempts to improve and streamline processes. This chapter will provide a general overview of the project approval process within the DND, including overall Government of Canada (GoC) guidelines and governance. A brief background on the requirement to better streamline processes will follow including some of the catalysts for change and the key mechanisms through which these changes have been implemented. The most recent drivers of change which will be discussed include the Project Approval Process Renewal (PAPR) initiative and the independent review by KPMG. This will include objectives and key recommendations made with respect to the project approval process. Finally, the chapter will illustrate how these recommendations led to recent modifications and additions in the 2019 publication of the PAD.

  DND's project approval process, like other government departments, is bounded by Treasury Board (TB) policies and guidelines. These include TB Policy on the Planning and Management of Investments and the Directive on the Management of Projects and Programmes.[14] These TB policies and directives aim to ensure that "government projects and programmes are effectively planned, implemented, monitored and controlled, and closed to enable the realization of the expected benefits and results for Canadians."[15] In addition, it also ensures that "the necessary assets and services are in place to support program delivery to

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[14] Ibid., 2.

[15] Treasury Board Secretariat, "Directive on the Management of Projects and Programmes," last modified 11 April 2019, Directive on the Management of Projects and Programmes- Canada.ca (tbs-sct.gc.ca).

Canadians."[16] TB outlines four distinctive management cycles for the life of an asset which include Planning, Acquisition, Operating and Maintenance and Disposal. While acquisition is only one cycle, all other cycles must be considered during project planning and implementation. However, from the perspective of the project approval process, only the first two cycles are involved in the project management process within DND. Project management in DND follows the five phases of project management outlined and guided by the Project Management Body of Knowledge (PMBoK). As previously illustrated in Figure 1.1, these five phases are Identification, Options Analysis, Definition, Implementation and Closeout. The alignment of these phases with the TB asset life cycle is outlined in Figure 2.1 below. It illustrates the same information from Figure 1.1 but demonstrates how it fits into the overall TB asset life cycle.
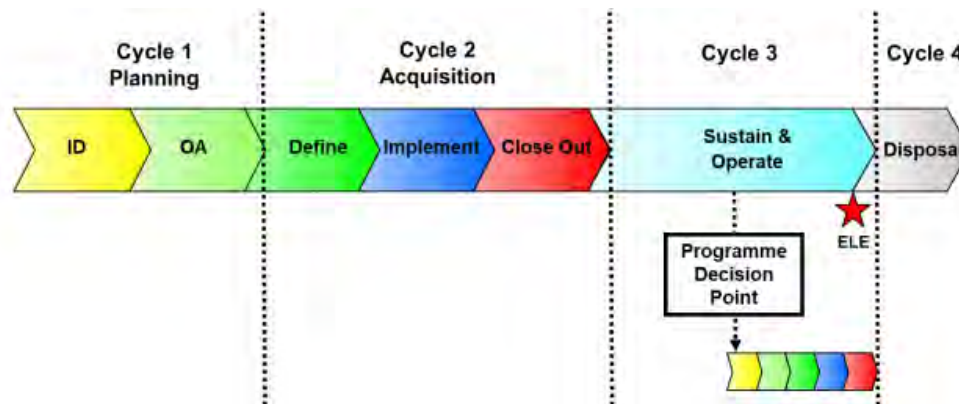
Figure 2.1: TB Asset life cycle vs Project Management Phases

Source: Department of National Defence, Project Approval Directive, 3.

The Identification phase is where a capability gap or deficiency is identified. This phase is normally led by the respective Level 1 (L1) – Canadian Army (CA), Royal Canadian Air Force (RCAF), Royal Canadian Navy (RCN) or Canadian Special Operations Command

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[16] Treasury Board Secretariat, "Policy on the Planning and Management of Investments," last modified 11 April 2019, Policy on the Planning and Management of Investments- Canada.ca (tbs-sct.gc.ca).

(CANSOFCOM). The service who identified the capability gap and requirement is the lead organization and is referred to as the project sponsor. While L1s form the majority of project sponsors, other capability deficiencies or gaps are identified which support joint capabilities or other support services such as Information Technology, Logistics, etc. In these cases, the project sponsor is usually the functional authority or another central organization for joint capabilities. In this phase, the identified capability gap and required capability must also demonstrate alignment with defence policy, a potential source of funding, and any associated risks. In order to support this, a preliminary business case analysis is developed which includes, at a minimum, the proposed project scope, high-level mandatory requirements (HLMR), preliminary options analysis and a rough order magnitude (ROM) cost estimate.[17] If recognized and approved by the Defence Capability Board (DCB), the initiative is only then considered a project.[18] The DCB is chaired by the Chief of Force Development (CFD), provides decision-making support to the VCDS, and serves as the approval authority for business cases prior to investment decisions.[19]

As the name suggests, the Options Analysis phase includes a rigorous analysis on the potential options available to fill the capability gap. Similar to the Identification phase, the Options Analysis phase is funded by the sponsor's operations and maintenance budget and is not yet allocated capital project funding. The two main objectives of this phase are: (1) to develop and recommend a single option to meet the capability deficiency endorsed by the DCB; and (2) to obtain approval and expenditure authority to proceed to the Definition phase.[20] Expenditure

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[17] Department of National Defence. *KPMG Report: Project Approval Process Renewal*, Defence Renewal Change Management Services, #W8484-14P2KP/B PWGSC, 05 February 2016, 72.

[18] David Perry, *2015 Status Report on Major Defence Equipment Procurements* (Canadian Global Affairs Institute, 2015), 2.

[19] Department of National Defence, *Project Approval Directive* (Ottawa: Canada Communication Group, 2019), 360.

[20] Department of National Defence. *KPMG Report: Project Approval Process Renewal*, Defence Renewal Change Management Services, #W8484-14P2KP/B PWGSC, 05 February 2016, 72.

authority will be granted either internal to DND by the Minister of National Defence (MND) or externally by TB in its capacity as a Cabinet committee. The expenditure approval authority depends on two factors: (1) estimated project cost; and (2) the project complexity and risk assessment (PCRA). The thresholds for expenditure authority approval and the requirement for review by an independent external organization – the Independent Review Panel for Defence Acquisition (IRPDA) – will be discussed later in this chapter. Senior Review Boards (SRBs) are also established during the Options Analysis phases to ensure coordination across L1s. SRBs are departmental committees which support the project leader and provide a challenge function for overall project oversight.[21] In addition, other stakeholders are involved to better define the technical requirements, cross-environment considerations and costing effort. Depending on the project, initial engagement with industry may also occur during this phase. At the end of this phase, a cost-benefit analysis for each option will be completed including a recommendation on the preferred option. ROM cost estimates are also refined into indicative cost estimates where the actual cost are expected to be within +/- 25% of this estimate.[22] The DCB is the approving authority for the preferred option while either the MND (or delegated governance board internal to DND) or TB will be the approving authority to proceed onto the next phase – Definition. As mentioned earlier, the thresholds for approval will be explained later in the chapter.

If the project is approved to proceed, it enters the Definition phase and it is the first instance where vote 5 funding is approved and used. Vote 5 funding is "expended primarily for the acquisition of capital equipment, information systems, and infrastructure."[23] The objective of

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[21] Department of National Defence, *Project Approval Directive* (Ottawa: Canada Communication Group, 2019), 375.

[22] Ibid., 366.

[23] Ibid., 377. The federal budget allocates funding using a vote system where the number assigned is arbitrary and used to distinguish where the funding should be spent. Additional information on the vote system can be found at: Alex Smith, Shaowei Pu, *The Parliamentary Financial Cycle* (Ottawa: Library of Parliament, 22 October 2019).

the Definition phase is to further define and develop the project in order to receive approval and funding to implement the project. Technical requirements are further refined within the Statement of Requirements (SOR) and risk mitigation strategies and project management plans are developed. In addition, the project costing is further refined to a substantive cost estimate. Substantive cost estimates require a detailed analysis and breakdown and the actual project cost is expected to be within +/- 15% of this estimate.[24] The project focus is now on "how" the capability gap will be realized and the lead organization changes from the project sponsor to the project implementer. The project implementer "is the executive who defines and implements the solution to deliver the required capability."[25] Within DND, the main project implementer for capital equipment assets is Assistant Deputy Minister Material (ADM(Mat)) with internal divisions aligned by service. That said, the project sponsor remains responsible for ensuring the SOR is still relevant and aligned with the capability requirement in support of the project implementer.

At the end of the Definition phase, the project must be approved by the appropriate authority, either the MND or TB, depending on the estimated project cost and PCRA. Once approved, the project enters the Implementation phase where the process is initiated towards awarding a contract and eventually delivering the required capability. The project implementer, through the responsible project management office, works closely with Public Service and Procurement Canada (PSPC) and Innovation, Science and Economic Development (ISED) to develop the procurement and long-term sustainment plan. The project management office will oversee the project in terms of cost, scope and schedule and manage capability delivery. During project delivery, the project management team must validate and declare initial operational

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24 Ibid., 376.
25 Ibid., 372.

capability (IOC) and full operational capability (FOC). IOC is unique to each project and identified as the "minimum ability to effectively employ a new or improved capability for which adequate infrastructure, training, staffing and support is in place, both for the new capability and the organization that is employing it."[26] FOC is defined as "the ability to effectively employ a delivered capability for which the required infrastructure, training, staffing and support are fully in place as detailed in the SOR."[27] Once FOC is attained, it signals the end of the Implementation phase and the project can proceed to Closeout.

Project closeout phase takes place after FOC is achieved and the project management team ensures that all accounts are closed and lessons learned are documented. A project completion report is produced and is distributed to key stakeholders and approving authorities responsible for project approval and project management process. Once in closeout phase, the project management team is scaled to only those required to support closeout activities and may be re-rolled to support another project or equipment management team.

In addition to the project phases outlined above, a project is subjected to a framework of project gates where decisions are sought before proceeding to the next gate. A project gate is essentially a "logical point at which executive "gatekeepers" can determine whether and how to proceed."[28] The gating framework is aligned with the TB Directive on the Management of Projects and Programmes and serves two specific purposes. Firstly, it identifies the specific decisions expected at each gate, the governance body responsible for the decision, and the required supporting information. The second purpose is to highlight specific risks of the project, outline input from key stakeholders, and to identify the procurement strategy, project

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[26] Ibid., 376.
[27] Ibid., 364.
[28] Ibid., 32.

dependencies and constraints. Within the DND, a project is subject to seven gates between the Identification and Implementation phases.[29] These gates will not be described in detail however, it is important to highlight that expenditure approvals for the Definition and Implementation phases are not considered project gates but milestones. The expenditure approval milestone is an approval sought within one of the identified project gates.[30]

As mentioned earlier, expenditure authority for a project (both Definition and Implementation phases) depends on two major factors – project cost and the PCRA. The level of approving authority under these two factors are guided and influenced by the department's capacity to manage projects known as the Organizational Project Management Capacity Assessment (OPMCA). There are five classes within the OPMCA which include: Base (Unassessed); Level 1 (Sustaining); Level 2 (Tactical); Level 3 (Evolutionary); and Level 4 (Transformational). DND is assessed as level 3 (Evolutionary) which permits "more flexibility as it undertakes procurements to provide the DND/CAF with the tools they need to secure and defend Canada's defence interests."[31] Using a matrix approach, the relationship between the OPMCA rating and project PCRA identifies the appropriate level of approval authority – either the MND (internal to DND) or TB (external to DND). This relationship is outlined below in Figure 2.2 which is drawn directly from the PAD.

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[29] Ibid., 33. For a detailed review of the seven project gates, additional information can be found in the Project Approbal Directive, 33.

[30] Ibid., 33.

[31] Ibid., 1.
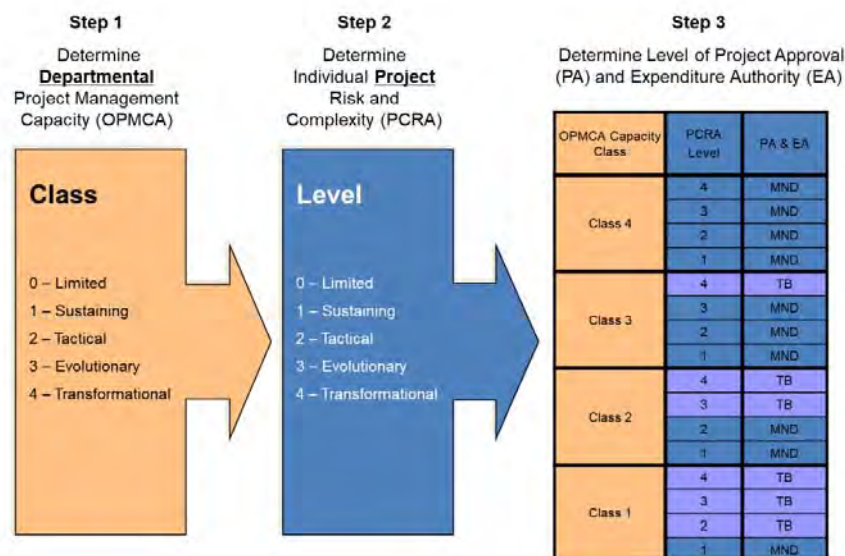
Figure 2.2: Relationship between OPMCA and PCRA

Source: Department of National Defence, Project Approval Directive, 9.

The PCRA is "a 64 question assessment used to benchmark a project in 7 categories to determine the appropriate level of oversight required."[32] Within DND, a PCRA is required for any project with an estimated cost of more than $10M.[33] As a result, in accordance with Figure 2.2. above, the MND exercises project approval and expenditure authority over projects with PCRA level 3 and below, including those under $10M with no requirement for a PCRA. TB is the approval authority and expenditure authority for all PCRA level 4 projects. It is important to highlight that approvals for PCRA 3 projects and below, which fall under the MND's authority, are further delegated to governance bodies within DND based on project cost. The Programme Management Board (PMB) is an internal governance board co-chaired by the VCDS, the Associate Deputy Minister, and the Chief Financial Officer (CFO). It supports investment decisions and is delegated project approval and expenditure authority over projects valued at

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[32] Ibid., 371.
[33] Ibid., 10.

$50M and below.[34] Projects valued in excess of $50M are moved to the Investment and Resource Management Committee (IRMC) for consideration and approval on behalf of the MND. IRMC is chaired by the Deputy Minister, provides high-level financial direction within a broad corporate governance framework and ensures that all investment and resource decisions are fully aligned with and support National Defence priorities and strategies.[35]

Projects greater than or equal to $100M, regardless of PCRA rating, are considered medium risk projects mainly due to dollar value and increased potential for public scrutiny. As a result, the IRPDA must be engaged for projects valued at $100M or more and serves as a challenge function. The IRPDA was established in 2015 and is comprised of a chair and four other members appointed by the Governor in Council. Its mandate is to challenge "the requirements for major military procurement projects and offer arms-length, third-party advice to the Minister of National Defence before the Minister or Treasury Board are asked to approve these projects."[36] Projects are presented to the IRPDA at two formal points in the approval process. The first presentation occurs at the end of Identification after the capability gap is identified and the HLMRs are developed. The second presentation is at the end of Options Analysis when the preferred option has been approved and preliminary operational requirements have been drafted. The IRPDA may also request additional presentations from projects, if required, while the MND may also direct additional IRPDA engagements to better support the decision-making process.

As outlined above, the project approval process within the DND is complex, involves many stakeholders, and is governed by various organizations both internal and external to the

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[34] Ibid., 295.

[35] Ibid., 301.

[36] Government of Canada, "Independent Review Panel for Defence Acquisition," last modified 12 June 2019, Independent Review Panel for Defence Acquisition - Canada.ca

department. Several factors influence the level of approval authority which include project cost, project risk and complexity, and the department's project management capacity rating. While the project approval process is complex, it has been assessed as "appropriate for large and complex military equipment acquisitions."[37] It was also a single "one size fits all" process where all projects were subject to the same process and gate framework for approvals. As a result, in an effort to find efficiencies and make the process more scalable, the PAPR initiative was directed in April 2012.

PAPR Initiative Overview

The PAPR Initiative was directed by the VCDS in April 2012 due to concerns associated with project delays, unclear accountabilities and many criticisms surrounding defence capital acquisitions. The PAPR initiative was mandated to develop an "efficient and effective management of departmental expenditures with project approval processes that is proportional to complexity, costs, urgency, importance and risk."[38] The desired outcome was to reduce the project approval cycle time by at least 50% while doubling the throughput of projects. At the same time, it recognized the requirement to maintain compliance with TB policy while supported by an effective risk management framework.

The PAPR working group included vast representation from various organizations and key process stakeholders both within the DND and external partners. Under the direction of Chief of Programme (C Prog), the working group conducted analysis on the approval process for all types of projects including equipment, Information Management/Information Technology (IM/IT), and construction projects. In so doing, it was found that only less than 20% of the

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[37] Department of National Defence. *KPMG Report: Project Approval Process Renewal*, Defence Renewal Change Management Services, #W8484-14P2KP/B PWGSC, 05 February 2016, ii.

[38] Department of National Defence, PAPR Project Working Group, *Project Approval Process Redesign Project: A CF/DND Redesign of Major Acquisition Processes* (Ottawa: Canada Communication Group), 28 June 2013, 6.

projects were actually complex enough to be subject to the complete approval process at the time.[39] However, these projects accounted for approximately 80% of the defence capital expenditures. The remaining 80% of projects were low risk and complexity, PCRA 1 and 2, and accounted for 20% of the expenditures. The PAPR Working Group report was published in June 2013 which recommended that the project approval process be "redesigned into 20 processes proportional to risk, complexity and the group's industry."[40] However, three project approval approaches were recommended:

- Standard process – PCRA 1 and 2 projects;

- Complex process – PCRA 3 and 4 projects; and

- Fast Track process – designed for urgent requirements and for equipment that can be easily procured. This approach would be the exception and not the rule.

The PAPR initiative anticipated 50% faster delivery of more than 80% of projects with better accuracy in investment planning and budgeting. It envisioned enhanced efficiency in the corporate submission process where documentation is moved between stakeholders to seek required approvals. In addition, it planned for risk assessments at appropriate and pre-determined points in the process with a better method to resolve unexpected bid outcomes during the Implementation phase. The implementation of these recommendations in the PAD will be discussed below after an overview of the KPMG report which conducted an analysis on the PAPR working group recommendations.

KPMG Report Overview

The PAPR initiative started at the time when the DND was undergoing a Defence Renewal process and it was envisioned as contributing both directly and indirectly to the overall

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[39] Ibid., 8.
[40] Ibid., 8.

Defence Renewal objectives. The main objective of the Defence Renewal was to "create a lean and efficient organization that can generate savings to be reinvested in military capabilities and readiness."[41] This resulted in nine focus areas and thirty-three initiatives focused on four major outcomes[42]:

- Resources focused on front-line capabilities and readiness and a reduction in overhead costs and process efficiencies;

- Implementation of performance metrics and targets to measure and assess improvements, support resource allocation decisions, and ensure accountability;

- Use of technology innovation to support and improve process improvements; and

- An improved culture of continuous improvement and renewal in all defence business.

DND contracted KPMG LLP (referred to KPMG hereafter) to assist the Defence Renewal and provide third-party advice on processes and initiatives. As a result, DND requested KPMG to assess the recommendations from the PAPR working group. KPMG was specifically requested to validate the recommendations, assess the implications of changes in government policy to the project approval process, and identify additional opportunities for improvement.[43] In doing so, KPMG largely focused on the initial three phases of the project approval process – Identification, Options Analysis and Definition – including project approval and expenditure authority for Implementation.

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[41] Department of National Defence, *Review of Defence Renewal Final Report 7055-64 (ADM(RS)), May 2017,* Review of Defence Renewal - Canada.ca

[42] Ibid., 4.

[43] Department of National Defence. *KPMG Report: Project Approval Process Renewal*, Defence Renewal Change Management Services, #W8484-14P2KP/B PWGSC, 05 February 2016, 3.

The final KPMG report in February 2016 suggested that DND was "not on track to achieve its objective of doubling capital project throughput in half the cycle time."[44] This assessment was based on observations deeper than the PAPR initiative which included organizational culture and internal bureaucracies. First, it suggested that a lack of business-culture within DND inhibits the ability to maintain timely forward momentum on capital projects due to its focus on process versus outcomes. Second, it found that there was an unrealistic understanding of cost estimates which locked-in major funding decisions too early using only ROM estimates. As a result, as cost estimates evolved, it appeared to "escalate over time, giving the impression a project is being mismanaged."[45] Third, it identified shortfalls in the structural framework itself for project management which included a complex process with split accountabilities at every level of approval. Lastly, the report highlighted an overall unwillingness to change and slow movement to actually improve the process. Recommendations from the PAPR Working Group in 2013, which presented options to streamline PCRA 1 and 2 projects and clear the backlog, were still pending internal approval.

Drawing on these observations, KPMG identified potential opportunities for consideration to better support the PAPR initiative. Aligned with improving a business culture, the key focus areas included project approval performance targets and metrics, project prioritization and optimized portfolio management through data-driven systems. The second opportunity for improvement was to tailor project approvals to the PCRA. KPMG validated the options presented by the PAPR Working Group as a good starting point but also highlighted that "numerous process steps were wasteful and did not add value."[46] In order to support a tailored

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[44] Ibid., 8.
[45] Ibid., 8.
[46] Ibid., 22.

approach, the report recommended the creation of a central support team to assist project directors and project managers in the development and approval of PCRA 1 and PCRA 2 projects. In addition, it recommended that off-the-shelf equipment be the default option for low risk projects when it met stated requirements. It envisioned that this would accelerate the project approval process with less time spent in determining a project's scope, cost and schedule.

The third opportunity suggested improvements related to costing estimates. It recommended that costing estimates be performed by specialists with experience in defence capital projects. This could be achieved either internally within Director Costing Services (D Cost S) or through third party outsourcing. In addition, it recommended that costing specialists be involved early in the project process in the Identification phase. This would better inform ROM estimates and ensure appropriate and consistent costing assumptions and inputs, reducing the likelihood of costing errors later in the process. The fourth opportunity was aimed at enabling people and using technology to better streamline the process. The report recommended that better training be developed and provided to project directors along with the establishment of a lessons-learned system. The intent is for project directors to fully understand the process, their roles and responsibilities, and other key stakeholders while also learning from challenges faced in similar projects. Lastly, to support the overall process, it recommended the development of an automated system to administer the process with "standardized tools and templates to capture both structured and unstructured data (e.g. e-mails, records of decisions, industry consultations)."[47]

The KPMG review supported and reinforced some of the key recommendations from the PAPR Working Group specifically for the project approval process. However, it highlighted

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[47] Ibid., 57.

challenges which could be faced due to DND's organizational culture, process-focused thinking, and risk aversion. That said, some of the key recommendations from the PAPR working group were incorporated into the latest PAD by the PAPR team within C Prog. The following section will highlight the major modifications and additions in the PAD related to the project approval process. It is specifically "packaged" to facilitate comparison and discussion in the follow-on chapters.

PAPR Modifications in the Project Approval Directive

The PAD provides the framework, guidance and tools necessary to support project personnel in understanding the governance structures, key process timelines and required supporting documentation. As outlined in the opening message from the DM and CDS, the PAD is "an important part of a wider effort that includes professional training and certification, knowledge management, defence analytics, new and improved costing, and performance measurement."[48] It also states that Part II of the PAD "provides a comprehensive, step-by-step guide to project and programme management within DND, tailored to both the type and complexity of projects."[49] These two statements from the strategic level demonstrate alignment with the key recommendations from the PAPR Working Group and the KPMG report discussed earlier. The following sections will discuss how these recommendations were incorporated in the PAD with focus on costing, the tailored approaches for approvals, and performance metrics.

Costing. As discussed earlier, project cost and PCRA are the two project factors which determine the level of approval and expenditure authority. Estimated project costs also determine the level of detail required for project cost estimates which determine the degree of expertise

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[48] Department of National Defence, *Project Approval Directive* (Ottawa: Canada Communication Group, 2019), 1.

[49] Ibid., 1.

required for this effort. The cost estimates for projects valued at $10M or less are developed

within the project team between the project sponsor and project implementer. It is then validated

by costing specialists within Assistant Deputy Minister Finance (ADM (Fin))/CFO prior to

expenditure authority approval in the Definition and Implementation phases. Projects with an

estimated value of more than $10M must have a more detailed costing process and costing

specialists in ADM (Fin)/CFO are mandated to develop full lifecycle cost estimates.[50] Within

ADM Fin/CFO, the responsibility for these cost estimates falls to both Director Cost Estimate

Delivery (DCED) and Director Cost Analytics (DCA) as "the departmental functional authorities

for the costing of capital projects (with a value of $10M or more)."[51] They work closely with the

project team to develop both substantive and indicative costs required for expenditure authority

approval in the Definition and Implementation phases respectively. Depending on the project

type and complexity, this costing activity can take anywhere between 10 and 35 weeks[52] and

therefore reinforces the recommendation for early engagement identified by KPMG. This early

engagement is supported by a costing requirements checklist which allows key stakeholders to

ensure the appropriate information is provided and available to commence the costing exercise.

Potential future process delays could be avoided with early engagement to ensure accuracy and

standardization of cost estimates.

     The challenges associated with using ROM costs as the basis for major decisions and

then creating a perception of escalating costs has also been outlined in the PAD. It must be

understood and reinforced that ROM costs are preliminary estimates by the project team and are

not sufficiently accurate to warrant project approval or expenditure authority. As a result, the

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[50] Ibid., 344.
[51] Ibid., 343.
[52] Ibid., 81.

PAD suggests that project teams and approval authorities "exercise caution when using ROM estimates as they can seed management expectations."[53] The focus is on substantive and indicative cost estimates where costing specialists apply expert methodologies and processes to develop a well-informed, process-driven estimate. These methodologies and processes are informed by the Costing Handbook which is an "unofficial publication produced through the collective efforts of the Directorate of Strategic Finance and Costing (DSFC) staff, … in conjunction with the Cost Factors Manual (CFM) and the Economic Model (EM)."[54] Cost estimates driven by expert methodologies and processes promote accuracy and standardization in cost estimates to support decision-making throughout the processes. Done correctly, it could avoid delays or stalls in later gates and phases of the project and ultimately facilitate a more streamlined process which is better-supported for approvals.

Tailored Approach. As discussed earlier and illustrated in Figure 2.2, the MND exercises project approval and expenditure authority for projects with a PCRA of 3 and below. The PAPR initiative is internal to DND and therefore could only influence those projects which fall within the MND's approval authority. As a result, the tailored approach adopted for these DND projects allows the MND to give project approval and expenditure authority for Definition with conditional approval for Implementation based on accuracy of the cost estimates. This conditional approval is only granted if the substantive cost estimate "falls within +/- 20% of the overall indicative costing."[55] As a reminder, the indicative cost estimate is required for Definition and is expected to be within +/- 25% of actual cost while the substantive cost estimate is required for Implementation and is expected to be within the 15% range. If the change in cost

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[53] Ibid., 375.
[54] Ibid., 361.
[55] Ibid., 182.

estimate is greater than +/- 20%, the project team must seek a second formal approval and expenditure authority from the MND (or delegated authority) before Implementation.

The PAD also highlights that cost estimates which remain within the costing range of +/- 20% do not automatically grant approval for direct transition from Definition to Implementation. Oversight for this transition is still governed by the delegated bodies of either PMB or IRMC. Projects where cost estimate changes are within +/- 10% are processed secretarially for approval by the applicable governance body. As a reminder, PMB is the governance body for projects valued between $10M and $50M while IRMC is the approval authority for projects valued greater than $50M. Projects with cost estimate changes between 10% and 20% must be presented at a formally, scheduled meeting of the governance body (PMB or IRMC). The project will be assessed and will either be approved to proceed, directed to the MND for approval to proceed or given other direction.

Projects assessed as PCRA 4 fall outside the authority of the MND and are not eligible for the tailored approach outlined above. They must follow the standard process for formal project approval and expenditure authority before both Definition and Implementation. Most major capital projects are in this category but represent approximately 20% of DND projects. As a result, with accurate cost estimates, 80% of DND projects could benefit from the tailored approach and gain efficiencies in the project approval process. Based on the tailored approach outlined above and project value thresholds, four process paths are included in the PAD for "streamlining lower risk and complexity projects within the MND's authority."[56] The process paths as outlined are:

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[56] Ibid., 303.

- <u>Process A</u> – Minor projects between $2.5M and $10M which are approved by the Level 1 sponsor or implementer with no PCRA and no formal project phases.

- <u>Process B</u> – Major projects between $10M and $100M with PCRA 3 and below, governed by PMB and IRMC, does not require IRPDA engagement, and benefits from the tailored approach for MND project approval and expenditure authority.

- <u>Process C</u> – Major projects equal to or greater than $100M with PCRA 3 and below, governed by PMB and IRMC, requires IRPDA engagement, and benefits from the tailored approach for MND project approval and expenditure authority.

- <u>Process D</u> – Major projects with PCRA 4, governed by PMB and IRMC, requires IRPDA engagement, and must seek TB approval and expenditure authority for Definition and Implementation.

The first process path is low-risk and approvals remain mainly between the project sponsor and project implementer. Projects under processes B and C benefit from the tailored approach and represent the two processes which depart from the previous "one size fits all" approach. More detailed and accurate cost estimates developed through early engagement in the process is key to benefit from and facilitate a streamlined approach for project approval and expenditure authority. The value placed on cost estimates with potential to benefit from informal secretarial approval reduces time in the approval process and avoids potential delays due to cost estimate variations.

<u>Targets and Metrics</u>. With the understanding that all projects differ in risk and complexity, project timelines are specified in the respective project charter which establishes key milestones and deliverables. The PAD notes the criticality of time as a resource and charges PMB with the responsibility to challenge project teams on delays when the projects are briefed at

this forum.[57] In addition, it identifies that any projects that demonstrate a lack of progress for more than one year in any phase will be reviewed by PMB with the intent to minimize the time required to achieve project outcomes. Specific time targets or expectations are identified for both Options Analysis and Definition with objectives associated with each phase to be met within "the standard two-year period."[58] As a result, as part of its project brief, project teams must justify why a project requires more time than average in a particular phase. That said, other than the expected two-year expectation or target for both Options Analysis and Definition, other performance indicators in the PAD are primarily focused towards achieving IOC and FOC.

Conclusion

The project approval process outlined in this chapter is complex and is only one element of the overall defence acquisition process. Varying accountabilities and a process-driven culture adds to the complexity which present challenges associated with project delays and cost overruns. The PAPR initiative and KPMG recommendations have led to changes in the PAD including a tailored approach and different process paths which are yet to be assessed for success. The framework and supporting functions, such as costing specialists, have been put in place to better support the tailored process paths. But, is there more that can be done to make the project approval process and overall defence acquisition more agile and efficient? How do these modifications and processes compare to our allies? As discussed earlier, Canada is only but one nation challenged with defence acquisition reform to find efficiencies. Can Canada and DND benefit from processes and lessons learned from our allies? The next chapter will examine the defence acquisition processes of the US, UK and Australia, with a focus on their respective

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[57] Ibid., 35.
[58] Ibid., 241, 245.

project approval processes. This will then help set the conditions necessary for a comparative

analysis in chapter 4 with recommendations for consideration in future PAPR initiatives.

CHAPTER THREE: PROJECT APPROVAL PROCESS OF ALLIED NATIONS

As highlighted in the previous chapters, many other nations have undergone defence acquisition reviews over the years which forms the basis of this chapter. Unfortunately, there is no ideal process or organizational structure as defence departments continue efforts to streamline processes and deliver capability in a timely and cost-effective manner. Complexity and risk remain at the centre of all processes and nations adopt different approaches based on organizational structure, risk acceptance, organization's maturity and capacity. This chapter will examine the defence acquisition processes in the defence departments of the United States, the United Kingdom and Australia. Specific considerations will be expanded on in order to inform the comparison and analysis in chapter 4. A brief overview of the major defence acquisition reforms will be highlighted followed by an examination of the acquisition process with a focus on phases and the approval process. Key comparison criteria will also be highlighted to include the levels of decision authority, project value thresholds, and tailored approaches to the process. In addition, any other key areas for consideration will also be discussed as it supports the overall process.

United States

Similar to initiatives in DND, defence acquisition reforms in the United States in the last decade were aimed at exploring ways to curtail problems associated with cost, schedule and performance.[59] The objective of the Weapon Systems Acquisition Reform Act of 2009 was to improve the organization and procedures of the Department of Defense (DOD) for defence equipment acquisition.[60] Another initiative, albeit internal to the DOD, was the Better Buying

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[59] Government Accountability Office, *DOD Acquisition Reform: Leadership Attention Needed to Effectively Implement Changes to Acquisition Oversight* (Report to Congressional Committees, June 2019), 5.

[60] The Weapons Systems Acquisition Reform Act aimed to strengthen oversight and accountability by appointing officials with responsibility to closely monitoring acquisitions to ensure that costs are controlled. In

Power initiative[61] in 2010 which focused on affordability assessments, establishing cost targets and overall cost improvements during procurement and program execution. Despite improvements in cost control, there was still a concern that the defence acquisition process was overly bureaucratic and too slow.[62] As a result, Congress enacted additional defence acquisition-related provisions in the 2016 National Defense Authorization Acts[63] and in subsequent years. The key target areas of these provisions included oversight and governance of major defence acquisition programs and streamlined alternative acquisitions paths. The alternative acquisition paths represent tailored approaches for projects which will be discussed later in this section after a brief overview of the overall DOD Acquisition system.

DOD Acquisition System and Process. Similar to DND's process, the DOD Acquisition process follows the identification of a capability gap, project approval and funding allocations, and capability procurement and delivery. In order to support the process, the DOD Acquisition process is structured with three inter-dependent systems: (1) the Joint Capabilities Integration and Development System (JCIDS); (2) the Planning, Programming, Budgeting, and Execution (PPBE) System; and (3) the Defence Acquisition System. The JCIDS is focused on identifying the capability gap and requirement, the PPBE system for allocating resources and budgeting, and the Defence Acquisition system for procuring and delivering the capability. While all systems

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addition to organizational changes, it included policy amendments to address cost overruns and project delays. A summary of its elements is available at: "Summary of Weapon Systems Acquisition Reform Act of 2009," *US Fed News Service, Including US State News,* Feb 25, 2009.

[61] The Better Buying Power Initiative was introduced in September 2010 and targeted greater efficiency and productivity in defence spending. It was followed by a series up updated initiatives under the same name with focus on innovation and industrial relationships. Additional information is available at: Ryan McDermott, "DoD Unveils Third Iteration of Better Buying Power Initiative," *Fierce Government* (Sep 23, 2014).

[62] Government Accountability Office, *DOD Acquisition Reform: Leadership Attention Needed to Effectively Implement Changes to Acquisition Oversight* (Report to Congressional Committees, June 2019), 5.

[63] Additional information on the acquisition-specific provisions in the National Defense Authorization Acts can be found at: Moshe Schwartz, Heidi M. Peters, *Acquisition Reform in the FY2016-FY2018 National Defense Authorization Acts (NDAAs)*, CRS Report, 2018.

are interconnected in the overall process, the discussion below will mainly describe the Defence

Acquisition system. It is within this system where the project follows specific phases and

approvals between identification of the capability gap and delivery of capability.

The Defence Acquisition system is a five-phased, event-based process where projects are

subject to "a series of processes, milestones, and reviews from beginning to end."[64] The process

is governed by DOD Directive 5000.01, *The Defense Acquisition System*, and DOD Instruction

5000.02, *Operation of the Defense Acquisition System*. Figure 3.1 illustrates the five phases with

its key decision points and milestones which will be described below.
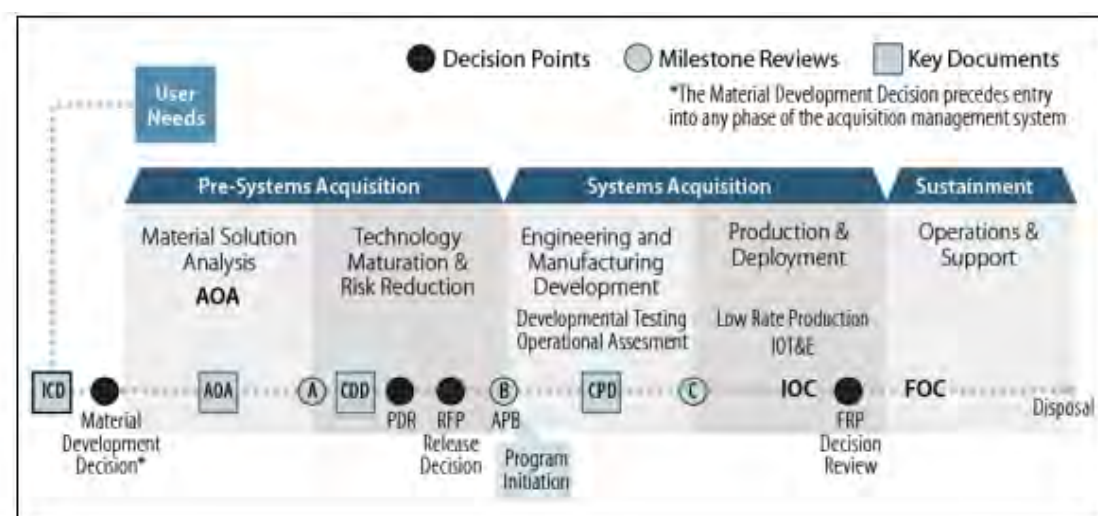
Figure 3.1: United States DOD Defence Acquisition System

Source: Schwartz, Moshe, Defense Acquisitions: How DOD Acquires Weapon Systems
and Recent Efforts to Reform the Process, Congressional Research Service Report, 7.

The initial phase of the process is the Material Solution Analysis phase which is primarily

focused on the analysis required to "choose the concept for the product that will be acquired."[65]

Before entering this phase, the requirement must be approved by a Material Development

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[64] Department of Defense, Section 809 Panel, *Report of the Advisory Panel on Streamlining and Codifying Acquisition Regulations*, Volume 2, June 2018, 14.

[65] Department of Defense, *DoDI 5000.2: Operation of the Defense Acquisition System* (Washington, D.C.: Under Secretary of Defense for Acquisition, Technology, and Logistics, January 7, 2015), 14.

Decision which is based on requirements outlined in an Initial Capabilities Document (ICD). The ICD is the output from the JCIDS process where a capability gap was identified and the requirement was validated and approved. The key activities in the Material Solution Analysis phase include an analysis of options available, key considerations for potential trade-offs in cost, schedule, and performance, cost analysis, and risk analysis and mitigation. The allocation of funding is less a concern in this phase as it is mainly aimed at developing the necessary information to support a decision to proceed to the next phase. The project management office is also established in this initial phase.

The second phase is Technology Maturation and Risk Reduction (TMRR). A milestone review and decision, referred to as Milestone A, is required before entering the TMRR phase. Milestone A approval includes approval of the proposed materiel solution and acquisition strategy, the cost estimate including life-cycle costs, and demonstration of funding for the project. The purpose of the TMRR phase is "to reduce technology, engineering, integration, and life-cycle cost risk"[66] to an acceptable level to enable a decision for contracting in the following phase to support engineering development. TMRR includes continued trade-offs between cost and requirements, where necessary, to facilitate an affordable and executable project within the cost and time constraints. Capability requirements are further matured and validated, and cost estimates are also refined. From a supplier perspective, this phase includes competitive prototyping where potential solution providers develop prototypes of a required system. At the end of the TMRR phase, "a decision can be made with reasonable confidence that a system can be developed to meet military requirements and fit within affordability caps."[67]

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[66] Ibid., 16.
[67] Moshe Schwartz, *Defense Acquisitions: How DOD Acquires Weapon Systems and Recent Efforts to Reform the Process*, Congressional Research Service Report, May 23, 2014, 10.

The third phase is Engineering and Manufacturing Development (EMD) where a system is designed and developed in preparation for manufacturing. Transition from TMRR to EMD requires another milestone review and approval, referred to as Milestone B. Milestone B provides approval to enter the EMD phase and to award contracts for EMD. In addition, this approval also "commits the required investment resources to the program."[68] The EMD phase involves operational testing and evaluation at the subsystem and integrated-system levels to determine whether the solution is operationally effective, suitable, and meets the identified requirements.

Following EMD, the project moves into the Production and Deployment phase which is focused on actually building and fielding the capability. Transition from the EMD phase to the Production and Deployment phase requires approval at Milestone C. Milestone C validates that "the production/deployment design is stable and will meet stated and derived requirements … operational supportability; costs within affordability caps."[69] The Production and Development phase begins with a low-rate initial production for quality control processes before entering into a full rate of production. The project can enter full-rate production "when it has completed sufficient operational testing and evaluation, demonstrated adequate control over manufacturing processes, and received approval to proceed with production."[70]

The last phase of the acquisition system is the Operations and Support. This phase occurs when the capability is fully deployed and includes in-service support and disposal at the end of its lifecycle. Once in this phase, the procurement process and project delivery is terminated and

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[68] Department of Defense, *DoDI 5000.2: Operation of the Defense Acquisition System* (Washington, D.C.: Under Secretary of Defense for Acquisition, Technology, and Logistics, January 7, 2015), 19.
[69] Ibid., 21.
[70] Moshe Schwartz, *Defense Acquisitions: How DOD Acquires Weapon Systems and Recent Efforts to Reform the Process*, Congressional Research Service Report, May 23, 2014, 13.

the capability is used in accordance with the requirements identified which initiated the acquisition process.

Acquisition Categories. DOD Acquisitions are classified into acquisition categories (ACATs) based on project cost and type. The ACAT determines the level of decision authority at each of the Milestones A to C and the overall process to be followed including required documentation. The ACATs are outlined in Appendix 3A to the DOD Instruction 5000.85 and are illustrated in Figure 3.2 below along with associated decision authorities. A summary of the ACATs are as follows:

- ACAT I – these are considered Major Defence Acquisitions where the estimated value is greater than $525M for research, development, test and evaluation or more than $3.065 billion for procurement of the capability.

- ACAT II – these are considered major systems which do not meet the criteria for ACAT I and an estimated value greater than $200M research, development, test and evaluation or more than $920M for procurement of the capability.

- ACAT III – these projects do not meet criteria for ACAT I or II and are not considered major systems.

ACAT		

ACAT I	• MDAP[1] (Section 2430 of Title 10, U.S.C.)
	  o Dollar value for all increments of the program: estimated by the DAE to require an eventual total expenditure for research, development, and test and evaluation of more than $525 million in Fiscal Year (FY) 2020 constant dollars or, for procurement, of more than $3.065 billion in FY 2020 constant dollars
	  o MDA designation
	• MDA designation as special interest[3]
		ACAT ID: DAE
		ACAT IB: SAE[2]
		ACAT IC: Head of the DoD Component or, if delegated, the CAE

ACAT II	• Does not meet criteria for ACAT I
	• Major system (Section 2302d of Title 10, U.S.C.)
	  o Dollar value: estimated by the DoD Component head to require an eventual total expenditure for research, development, and test and evaluation of more than $200 million in FY 2020 constant dollars, or for procurement of more than $920 million in FY 2020 constant dollars
	  o MDA designation (Section 2302 of Title 10, U.S.C.)
		CAE or the individual designated by the CAE[4]

ACAT III	• Does not meet dollar value thresholds for ACAT II or above • Is not designated a "major system" by the MDA	Designated by the CAE[4]

Figure 3.2: Acquisition Categories, Thresholds and Decision Authorities

Source: Department of Defense Instruction 5000.85, Appendix 3A, Page 20.

Levels of Decision Authority. The decision authorities outlined in Figure 3.2 above are aligned by ACATs and represent the Milestone Decision Authority (MDA) for Milestones A, B and C. As identified in DOD Instruction 5000.2, the MDA is either the Under Secretary of Defense for Acquisition and Sustainment (USD (A&S)) or a delegate when approval authority rests within the Office of the Secretary of Defense. If authority is at the Component Command level, the MDA is either the Head of the Component or, if delegated, the Component Acquisition Executive (CAE). The Head of the Component is the Secretary of the Component with statutory responsibility for all matters related to the Component. The Head of the Component has the authority to conduct all the affairs of the Department subject to the authority, direction and control of the Secretary of Defense. The Component Acquisition Executive is a civilian official within a military department responsible for all acquisition functions within that department.[71]

As part of ongoing defense acquisition reform under the National Defense Authorization Act for Fiscal Year 2016, the Under Secretary of Defense (Acquisition, Technology and Logistics) (now referred to as USD (A&S)) announced the plan to move "oversight of major procurement programs to the military services."[72] It was also cited in the same announcement that this, along with other procurement initiatives, could "reduce procurement lead times by as much as 50 percent."[73] As a result of this change, there has been a substantial increase in major defense acquisition programs with MDA at the military component level. According to a study by the United States Government Accountability Office, the Component-level MDA for Major defence acquisition projects increased from around 66% in 2016 to 90% in 2019.[74] However, this

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[71] Government Accountability Office, *DOD Acquisition Reform: Leadership Attention Needed to Effectively Implement Changes to Acquisition Oversight* (Report to Congressional Committees, June 2019), 11.

[72] Tony Bertuca, "DoD Dramatically Increases Military's Authority Over Acquisition Programs," *Inside the Pentagon's Inside Missile Defense* 23, Issue 26 (Arlington: December 20, 2017).

[73] Ibid.

[74] Government Accountability Office, *DOD Acquisition Reform: Leadership Attention Needed to Effectively Implement Changes to Acquisition Oversight* (Report to Congressional Committees, June 2019), 14.

re-alignment of MDA to the component level was not widely accepted as the best approach. A former Under Secretary of Defense (Acquisition, Technology and Logistics), Frank Kendall, opposed this directive. He referred to it as the departure from unity of command with delegated authority to the Components who would be "overly optimistic about cost, schedule and performance."[75] This increased delegated authority is outlined in Figure 3.2 where all authorities for approval are mostly at the Component level except for ACAT 1D projects.

      Tailored Approaches. Another reform in Section 804 of the National Defense Authorization Act for Fiscal Year 2016 required the DOD to establish "a streamlined middle tier of acquisitions for rapid prototyping and rapid fielding programs that are intended to be completed within 2 to 5 years."[76] As of March 2019, military departments started using this approach under interim guidance from the USD (A&S). A formal DOD Instruction was later issued in December 2019 and identified the employment of an "adaptive acquisition framework … each tailored for the unique characteristics and risk profile of the capability being acquired."[77] The focus here is on rapid prototyping and rapid fielding as the key criteria for the Middle Tier Acquisition (MTA) path. Rapid prototyping is aimed at using innovative technologies to rapidly develop prototypes for new capabilities in order to meet military requirements.[78] Rapid fielding refers to the use of already proven technologies for field production with minimal required time in development.[79] Figure 3.3 illustrates the Adaptive Acquisition Framework outlined in DOD Instruction 5000.80.

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[75] Tony Bertuca, "DoD Dramatically Increases Military's Authority Over Acquisition Programs," *Inside the Pentagon's Inside Missile Defense* 23, Issue 26 (Arlington: December 20, 2017).

[76] Government Accountability Office, *DOD Acquisition Reform: Leadership Attention Needed to Effectively Implement Changes to Acquisition Oversight* (Report to Congressional Committees, June 2019), 11.

[77] Department of Defense, *DoDI 5000.80: Operation of the Middle Tier of Acquisition (MTA)* (Washington, D.C.: Under Secretary of Defense for Acquisition and Sustainment, January 30, 2019), 3.

[78] Ibid., 8.

[79] Ibid.
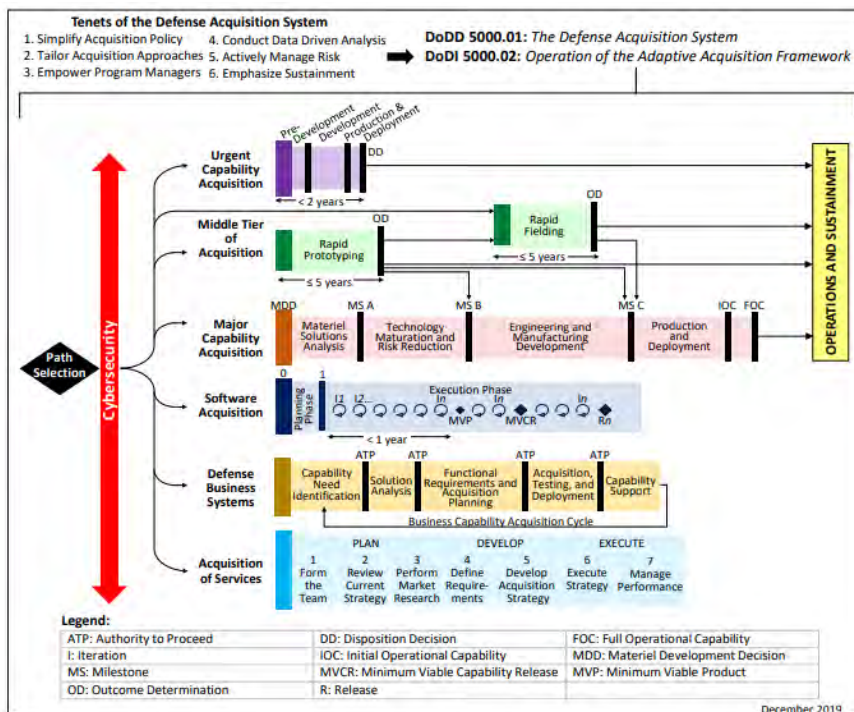
Figure 3.3: US DoD Adaptive Acquisition Framework

Source: Department of Defense Instruction 5000.80, Multi-Tier Acquisition, 4.

MTAs are exempt from the traditional acquisition process requirements with the only limitations being the project cost thresholds identified for ACATs in Figure 3.2. However, as outlined in the DOD Instruction 5000.80, the USD (A&S) "determines when a program is not appropriate for the MTA pathway" and may direct an alternate approach.[80] It also suggests that written approval is required for projects which exceed the cost thresholds for major defense acquisitions and request to use the MTA pathway. As a result, the MTA pathway is an option for any defence acquisitions which can justify the criteria associated with rapid prototyping and/or rapid fielding. As of March 2019, 35 DOD projects were initiated using the MTA pathway and represented a range of products, dollar values, and project complexity.[81] The study also found

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[80] Ibid., 5.
[81] Government Accountability Office, *DOD Acquisition Reform: Leadership Attention Needed to Effectively Implement Changes to Acquisition Oversight* (Report to Congressional Committees, June 2019), 26.

that half of the projects initiated at that time would have been categorized as ACAT I projects including a multi-billion dollar Army project to develop the next generation combat vehicle.[82] This demonstrates the widely used MTA process but also highlights the potential requirement for more robust guidelines for its use in future projects.

The United States DOD continues to seek ways to reform its defence acquisition system and most recent amendments are still being reviewed for effectiveness and efficiency. The levels of decision authority and thresholds should be considered relative to the size and structure of its organizations and acquisition expenditures. The MTA pathway demonstrates a tailored process to benefit from innovation and avoid technological obsolescence. However, it must be supported by clear guidelines and oversight which appear to be lacking in the US Defence Acquisition system.

United Kingdom

The brief review of the United Kingdom Ministry of Defence (MoD) acquisition reform in this section will begin with the 1998 Smart Procurement initiative (later became Smart Acquisition). The aim of the Smart Acquisition initiative was "to enhance defence capability by acquiring and supporting equipment more effectively in terms of time, cost and performance."[83] As a result of the initiative, two new organizations were created to enable better enable procurement – Defence Procurement Agency (DPA) and the Defence Logistics Organization (DLO). In addition, the number of approvals for a project from conception to delivery reduced from either three or four to only two approvals – the Initial Gate and Main Gate. Another change program was initiated in 2006 which led to the merger of the DPA and the DLO into the Defence Equipment and Support (DE&S) organization in 2007. An examination of these changes was

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[82] Ibid., 27.

[83] Ministry of Defence, *The Acquisition Handbook: Smart Acquisition,* ed. 4 (London, U.K.: January 2002), 2.

conducted by Bernard Gray in 2009 which included a study of 40 programs. He found that "on average, these programs cost 40% more than they were originally expected to, and were delivered 80% later than first estimates predicted."[84] He also recommended that the Initial Gate and Main gate approvals be retained and reinforced its place in the overall project process. Another defence review was conducted by Lord Levene in 2011 which recommended that a delegated model be adopted. The delegated model would see Environmental Service Chiefs (Army, Navy, Air Force, etc) responsible for managing their budgets, including equipment. The influence of some of these recommendations will be discussed later after a brief review of overall MoD acquisition system and project process.

Acquisition System and Process. Until the recent decision in 2020 to adopt a government-wide project management system[85], the UK defence acquisition cycle followed a six stage process through Concept, Assessment, Demonstration, Manufacture, In-Service and Disposal (CADMID). This cycle will be described followed by a brief outline of the newly adopted government system with a focus on where and how the approval processes intersect. The CADMID cycle represents the overall equipment life-cycle with CADM being the principal stages from a project approval and procurement perspective. As mentioned earlier, the Initial Gate and Main Gate are the two main approval points in the process before a capability is procured and fielded. The overall objective of the acquisition cycle is to "assist the reduction of risk during the Concept and Assessment stages so that, at Main Gate, there is a high level of confidence that project targets of time, whole-life cost, annual cost of ownership and

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[84] Bernard Gray, *Review of Acquisition for the Secretary of State for Defence: An Independent report by Bernard Gray*, October 2009, 16.

[85] Trevor Taylor, *The UK Ministry of Defence's Adoption of the Government-Wide System for Project Approvals*, Royal United Services Institute Commentary, 10 July 2020.

performance will be achieved."[86] Figure 3.4 below illustrates the CADMID cycle including the Initial Gate and Main Gate approvals.
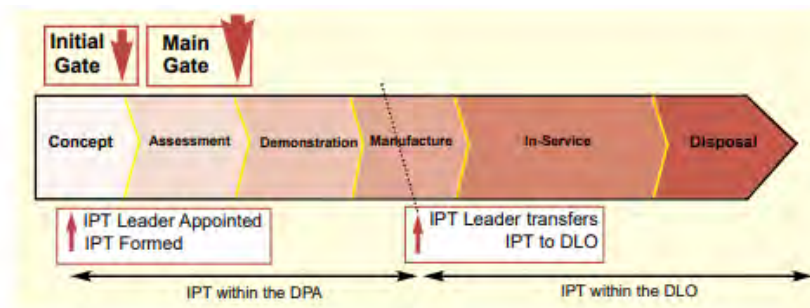
Figure 3.4: UK Ministry of Defence CADMID Acquisition Cycle

Source: Ministry of Defence, The Acquisition Handbook: Smart Acquisition ed. 4, 4.

The first stage is Concept which is associated with identifying the capability gap and producing a statement of the requirements in the form of a User Requirements Document (URD). The project team is established and initial engagements with industry is initiated to better assess technology and procurement options. A general plan is developed during the Concept stage for the Assessment stage and follow-on stages to include any performance, cost and time boundaries for the project. At the end of the Concept stage the project must pass through the Initial Gate approval before transition to the Assessment stage. The Initial Gate approval includes validation of the plan for the Assessment stage with reasonable confidence that there are potential and flexible solutions within the performance, cost and time envelopes outlined in the URD.

The second stage is the Assessment stage where user requirements are further refined and an analysis is conducted of the required capabilities to meet the requirements. This involves investigating potential trade-offs in time, cost and performance as potential options are compared against best value for money. Project and capability risks are also identified and reduced to a

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[86] Ministry of Defence, *The Acquisition Handbook: Smart Acquisition,* ed. 4 (London, U.K.: January 2002), 4.

level consistent with delivering an acceptable level of capability performance within time and cost constraints. At the end of the Assessment stage, Main Gate approval is sought before transition to the Demonstration stage. For Main Gate approval, "a single technological and procurement option (but not necessarily a single supplier) should be recommended."[87] In addition, with the Main Gate being the last approval required for the project, residual risk should be low. It should allow a high degree of confidence that the project team leader can deliver the project within time, cost and performance constraints and within delegated authorities.

The Demonstration stage is predominantly where a single contractor is selected which can also occur earlier or later based on project risk and complexity. During this stage, residual risks are further mitigated in order to accurately define performance targets for the Manufacture stage. The Manufacture stage is where production occurs and the final capability is delivered to the end user(s) to fill the capability gap. System acceptance is conducted to confirm that the final capability meets the requirements in the URD. A handover of responsibility also occurs in the Manufacture stage between the project management office and the in-service support organization within DLO. Once the project is fully delivered, the project management office is closed or re-purposed to another project.

The In-Service and Disposal stages occur outside the project process but must be considered throughout the project stages (CADM) to be successful. System upgrades or improvements, refits and incremental acquisitions may also occur during the In-Service stage. The Disposal stage involves the efficient, effective and safe demilitarization and/or disposal at the end of the equipment's lifecycle.

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[87] Ibid., 15.

As the MoD transitions to the government-wide acquisition system, the CADMID process will most likely continue from a materiel lifecycle perspective. However, there will be a process evolution to align with the government-wide approach. As outlined in *Her Majesty's Treasury Guide to Developing the Project Business Case*, there are three stages which represent three approval points in the project process.[88] The first stage is the Strategic Outline Case which confirms strategic alignment of the project. At the end of this stage, there should be a "good understanding of the robustness of the proposal and the future direction of travel"[89] to aid decision-making and approval authorities. Stage two is the Outline Business Case and its purpose is to refine the options developed in the Strategic Outline Case, to identify a preferred option, to confirm affordability, and to establish the project management office.[90] At the end of the Outline Business Case stage, decision authorities should have sufficient information to be able to approve the procurement process. The third and final stage is the Full Business Case. During this stage, the best option is determined based on project cost, affordability and overall public benefit. At the end of this stage, there is a high degree of confidence in the proposal and approval is sought for procurement and capability delivery.

In his comparison commentary, professional research fellow in Defence Management, Trevor Taylor, suggested that the Strategic Outline Case is novel when compared to the CADMID cycle. He also identified that the Outline Business Case and Final Business Case "require somewhat revised information sets compared with the earlier Initial Gate and Main Gate system."[91] For the purposes of this paper and due to limited information available on the MoD

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[88] Her Majesty's Treasury, *Guide to Developing the Project Business Case* (London: United Kingdom, 2018), 11.

[89] Ibid., 13.

[90] Ibid., 14.

[91] Trevor Taylor, *The UK Ministry of Defence's Adoption of the Government-Wide System for Project Approvals*, Royal United Services Institute Commentary, 10 July 2020.

transition plan, the author considers that the Outline Business Case and Final Business Case are in fact closely aligned with the Initial Gate and Main Gate approvals as suggested by Taylor. From an accountability perspective, Taylor also suggested that it places more responsibility on the project owner, usually the project sponsor, for overall capability development and management.[92] If this is the case, increased responsibility would further stretch the responsible office where 28% of projects reviewed in a 2020 National Audit report identified a "lack of team capacity and skills" as key factors affecting capability delivery.[93] Lastly, it is unclear whether this new process will speed up or slow down the acquisition cycle. Due to the information requirements in the Strategic Outline Case, it is believed to be slow at the start but expected to be faster in the later stages with a higher degree of confidence in the Business Case analysis.[94]

Levels of Decision Authority. Decision authorities associated with Initial Gate and Main Gate approvals are categorized by four project categories based on project costs. Category A projects have an estimated value greater than £400 million and the decision authority is the Investment Approvals Committee (IAC). The IAC is chaired by Director General Finance and is the senior body in the MoD for decisions on major investment proposals. The IAC reports to the Defence Board which is the main departmental board in MoD focused on strategy and plans for generating military capability.[95] Category B projects are valued between £100 million and £400 million. The decision authority is normally to a delegated authority (equivalent 2-star level representative) of each IAC member. Members may also formally delegate responsibility for

[92] Trevor Taylor, *The UK Ministry of Defence's Adoption of the Government-Wide System for Project Approvals, Part II: Risks and Hopes for the New System*, Royal United Services Institute Commentary, 16 July 2020.

[93] National Audit Office, *Defence Capability – Delivering What Was Promised* (London, U.K.: 18 March 2020), 8.

[94] Trevor Taylor, *The UK Ministry of Defence's Adoption of the Government-Wide System for Project Approvals, Part II: Risks and Hopes for the New System*, Royal United Services Institute Commentary, 16 July 2020.

[95] Ministry of Defence, *How Defence Works* (London, U.K.: September 2020), 20.

approval to a lower level for specific projects. Category C projects are between £20 million and £100 million with decision authority normally delegated to the 1-star level representatives of each IAC member. Similarly, members may formally delegate responsibility for approval to a lower level for specific projects. Lastly, category D projects are under £20 million and the decision authority is at the Director General (1-star equivalent) level or delegated to the project team leader.

Tailored Approaches. The research conducted for this paper provided little in terms of tailored approaches for MoD defence acquisitions. However, the ability to tailor processes in accordance with project risk and complexity was found in various documentation during the research. The 2002 Acquisition Handbook included a section "Variations on the CADMID Cycle" which states that the cycle "may need to be tailored for some projects, such as those delivering a capability without a 'Manufacture' stage or with a significant Defence Estates element."[96] Similarly, it was identified in the 2019 Defence Acquisition Review that the processes "intended to increase the speed of delivery by tailoring the acquisition process to suit each programme."[97] Lastly, and with some more clarity on potential tailored approaches, is the Treasury's guidance on project business case development to which the MoD has indicated that it will adopt.

Annex C to the Guide to Developing the Project Business Case identifies opportunities for tailored approaches based on risk and scale.[98] Projects assessed as high risk and large scale are considered well-defined projects and must adhere to the three stage business case process.

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[96] Ministry of Defence, *The Acquisition Handbook: Smart Acquisition,* ed. 4 (London, U.K.: January 2002), 5.
[97] National Audit Office, *Defence Capability – Delivering What Was Promised* (London, U.K.: 18 March 2020), 32.
[98] Her Majesty's Treasury, *Guide to Developing the Project Business Case* (London: United Kingdom, 2018), 111.

High risk, low scale projects are also considered well-defined projects but can be considered for

a combined Strategic Outline Case/Outline Business Case or Outline Business Case/Final

Business Case. Low/Medium risk, small scale projects are considered defined projects and can

be considered for a Business Justification Case which represents a simpler approach to the three

stage process. The Business Justification Case is "a single stage business case … for the delivery

of relatively low level spend for which firm prices are available."[99] Although limited details were

available during this research concerning tailored approaches, sufficient information can be

drawn from the literature that such options exist which are informed by project risk and scale.

Australia

The last allied nation for comparison is Australia which has also experienced its share of

defence acquisition reforms with attempts to find an optimal solution. Looking back to 2003, a

Defence Procurement review led by Malcolm Kinnaird was charged with "investigating systemic

failures that had caused delay and cost increases in a number of major defence acquisition

projects."[100] From a capability development process, the recommendations helped shape the

current two-pass approval process for defence projects which will be discussed later. It also led

to the creation two key organizations with responsibilities in defence acquisitions – the

Capability Development Group (CDG) and the Defence Materiel Organization (DMO). The

CDG was charged with and accountable for capability definition and assessment before passing

the project to the DMO for procurement within the acquisition process.[101] Establishment of the

CDG provided a single point of accountability for capability definition and costing estimates. As

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[99] Ibid., 115.

[100] David, Mortimer, *Going to the Next Level: The Report of the Defence Procurement and Sustainment Review* (Canberra, ACT: 18 September 2008), vii.

[101] Malcolm Kinnaird, *Defence Procurement Review 2003: An Independent Review* (Canberra, ACT: 2003), iv.

a result, this was envisioned to better enable the DMO to meet the expectations associated with delivery of defence capabilities.

Following the Kinnaird review, in 2008, the Parliamentary Secretary for Defence Procurement directed another formal review to evaluate the effectiveness of the reforms implemented from the Kinnaird Review.[102] The review was led by David Mortimer which "evaluated progress made under the Kinnaird reforms and examined current acquisition and sustainment processes."[103] The report made three key recommendations from a project approval process perspective in addition to various other recommendations related to organizational structures, budgeting, and the procurement process. The first process recommendation was that capability development should "focus on achieving more disciplined cost, schedule and risk information."[104] Second, it recommended the adoption of a tailored application of the two-pass process where simple defence acquisition projects could benefit from a single approval pass.[105] The third recommendation was for a subordinate approval committee to "handle minor and less complex defence acquisition matters."[106]

In 2012, an Australian Senate inquiry into defence procurement assessed that Defence "must do a better job of managing risk, especially technical risk, if it's to improve its acquisition record."[107] It also concluded that many of the challenges faced in defence acquisitions were due to various factors which include inadequate planning, poor risk management, failure of accurately assess the risk or complexity of projects, and poor project management, to name a

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[102] David, Mortimer, *Going to the Next Level: The Report of the Defence Procurement and Sustainment Review* (Canberra, ACT: 18 September 2008), vii.
[103] Ibid., xi.
[104] Ibid., 5.
[105] Ibid., 16.
[106] Ibid., 17.
[107] Keith Joiner, *Implementing the Defence First Principles Review: Two key opportunities to achieve best practice in capability development*, Australian Strategic Policy Institute, December 2015. 2.

few. In response to this Senate inquiry, in 2014 the Australian government launched the First

Principles Review (FPR) of all aspects of Defence. Its objective was to ensure that "Defence is

fit for purpose and is able to deliver against its strategy with the minimum resources

necessary."[108] From a defence acquisition perspective, the FPR's objective was "a commercially

astute, focused and accountable materiel acquisition and sustainment capability."[109] The FPR

acknowledged improvements to the capability development process in previous reforms and

made recommendations aligned with a single end-to-end capability development process. It

suggested that different organizations created a "disconnect between customers and the

purchaser as well as multiple and unnecessary handover points which increase complexity and

risk."[110] As a result, both the CDG and DMO were disbanded and the Capability Acquisition and

Sustainment Group (CASG) was created.[111] This organizational change was mainly aimed at

ensuring a single point of accountability for the acquisition process. Lastly, there were no real

concerns about the approval process itself and actually reinforced the capability development

cycle which will be briefly described in the next section.

Capability Development Cycle. The capability development cycle is also referred to as

the One Defence Capability Model and is an "integrated system that ensures Defence capability

decisions optimize capability outcomes within resource limitations."[112] The process is subject to

four principles: (1) centralized planning; (2) devolved execution; (3) specific processes for

government approval; and (4) specific processes linked to operational priorities.[113] The One

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[108] Department of Defence, *First Principles Review: Creating One Defence* (Canberra, ACT: 2015), 12.
[109] Ibid., 81.
[110] Ibid., 32.
[111] The disbandment of the CDG and DMO transferred the responsibility for capability development to the Vice Chief of Defence Force and the respective Service Chiefs. For detailed information on the realignment and transfer of roles and responsibilities see: Department of Defence, *First Principles Review: Creating One Defence* (Canberra, ACT: 2015), 35.
[112] Department of Defence, *Defence Capability Manual* (Canberra, ACT: 22 December 2020), 5.
[113] Ibid., 5.

Defence Capability Model has four phases which starts with linking a capability gap to government priorities and strategies through to in-service use and eventual disposal of the capability. This is similar to the previous models reviewed and is illustrated along the top in Figure 3.5 below. The key activities by phases along with the major stakeholders involved are illustrated below the phases in Figure 3.5.

Figure 3.5: Australia Department of Defence One Defence Capability Model

Source: Department of Defence, Defence Capability Manual, 5.

The first phase is the Strategy and Concepts phase which is where a capability gap is identified and aligned with strategic policy and direction. The link between government strategy and capability development is led by the Vice Chief of Defence Force (VCDF) organization and the VCDF is ultimately accountable for the activities within this phase. Required capabilities are identified and potential options are developed. Once confirmed as a need to fill a capability gap, a capability proposal is submitted for inclusion in the Integrated Investment Program (IIP). The IIP "provides a rolling capital investment plan, that ensures force structure addresses priorities

and is affordable."[114] Once accepted in the IIP, the Strategy and Concepts phase concludes with the first pass approval. The first pass approval provides "an opportunity to engage with government about how the capability relates to strategic priorities and the range of capability options."[115]

The second phase is Risk Mitigation and Requirement Setting which, as mentioned before, requires the first pass approval for transition from the Strategy and Concepts phase. This approval also provides the authority to continue with the process up until the second pass approval. The Risk Mitigation and Requirement Setting phase includes the development of options to address the capability gap including detailed requirements and risk management strategies. The capability manager is accountable for activities in this phase and represents the end user of the capability. In terms of project lead, the capability manager is the project sponsor. The capability manager represents the service for which the capability gap was identified or within the VCDF organization for joint capabilities. The capability manager is also supported by the lead delivery group within the CASG as the responsible organization for the procurement process. It represents the project management office and works in close partnership with the capability manager. This phase ends with the second pass approval where the approval to acquire the capability is obtained, funds are allocated and procurement can be pursued.

The third phase is the Acquisition phase and represents the last phase from a project approval process perspective. It is within this phase where the capability is procured and fielded to the end user. The Acquisition phase "commences with the second pass approval and concludes when the capability is introduced into service and available for use."[116] Capability managers

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[114] Ibid., 4.
[115] Ibid., 38.
[116] Ibid., 42.

remain accountable for activities in this phase however, the lead delivery group is the lead organization responsible for procurement and delivery. At the end of this phase, the project management office in the lead delivery group transfers support responsibilities to an in-service support team and is either closed or re-purposed for another project.

The last phase in this cycle is In-Service and Disposal "which sees the maintenance of capabilities at the appropriate level of preparedness … as required for operational employment."[117] This phase remains under the capability manager's responsibility and at the end of its lifecycle, both the capability manager and lead delivery group plan and manage the disposal process. It should be noted that the capability manager maintains overall accountability from the Risk Mitigation and Requirement Setting phase to the In-Service and Disposal phase. This accountability is informed by the recommendation from the FPR for the creation of an end-to-end capability development process. It reinforced that "aligning these roles on a single accountable manager would result in better decision-making."[118]

Also observed in the One Defence Capability Model in Figure 3.5, contestability is a common theme throughout the capability development process. This was another key recommendation in the 2015 FPR.[119] It recommended the need for a stronger and more strategic focus to provide better direction and contestability of decision-making.[120] As a result, this function was built into all phases for testing of judgements across the entire capability life-cycle. It includes independent reviews of capability proposals to ensure strategy and resource alignment

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[117] Department of Defence, *Defence Capability Manual* (Canberra, ACT: 22 December 2020), 7.

[118] Ibid., 34.

[119] The need for contestability was also argued by Andrew Davies, a senior analyst for defence capability at ASPI. He suggested earlier in 2013 that capability development is staffed by predominately military personnel with short tenures and limited experience in the field. Additional information can be found at: Andrew Davies, Mark Thomson, *Capability Development – still a work in progress (1),* Australian Strategic Policy Institute, 28 November 2013.

[120] Department of Defence, *First Principles Review: Creating One Defence* (Canberra, ACT: 2015), 5.

and that the capability can be delivered in accordance with government direction. Contestability "aims to improve the quality of advice provided to senior Defence committees and to Government, and hence confidence in decision-making by ensuring proposals are subject to appropriate scrutiny."[121] As a result, through an established Contestability Division, it provides "evidence-based advice to the VCDF (as Chair of the Investment Committee), the Secretary and CDF"[122] with respect to capability proposals and decisions.[123]

Levels of Decision Authority. The 2003 Kinnaird review reinforced the two-pass approval system but also suggested that the approval process lacked rigour and discipline.[124] It therefore recommended that the process be mandated and enforced through government policies and rules. These process improvements were acknowledged in the 2008 Mortimer review. Decision authorities are engaged at the first and second pass approvals however, there are also three project gates in the process. Within this process, gates are specific points in the process which are funding-related and reviewed by the IIC while the first and second pass approvals require government authority to proceed. At gate 0, capability proposals are considered for entry into the Investment plan with no formal approval as a project. Gates 1 and 2 are points for consideration by the IIC to provide recommendations to support decision-making at the first and second pass approvals respectively.

Similar to other processes described for the other nations, the level of approval authority at the first and second passes depend on project cost and sensitivity. The levels of approval authority range from Cabinet approval by the National Security Committee of Cabinet (NSC),

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[121] Department of Defence, *Defence Capability Manual* (Canberra, ACT: 22 December 2020), 22.
[122] Ibid.
[123] The Contestability Division is focused on different areas throughout the process. Specific details can be found at: Department of Defence, *Defence Capability Manual* (Canberra, ACT: 22 December 2020), 22.
[124] Malcolm Kinnaird, *Defence Procurement Review 2003: An Independent Review* (Canberra, ACT: 2003), 11.

joint approval between the Minister for Finance and the Minster for Defence, and approval

required only by the Minister for Defence. The NSC is chaired by the Prime Minister (PM) and

includes the Deputy PM, the Minister for Defence, other National Security Ministers, and the

two key economic ministers – the Treasurer and the Minister for Finance.[125]

Projects valued greater than $100 million require approval by the NSC and review by the

Standing Parliamentary Committee on Public Works (PWC). It is also anticipated that these

projects will spend approximately 4 years in the first two phases of the cycle before entering the

Acquisition phase. Projects with an estimated cost between $20 million and $100 million require

joint approval by the Minsters for Finance and Defence and review by the PWC. The time spent

in the initial two phases is anticipated at 3.5 years before transition to Acquisition. The next

range for project costs is between $13.5 million and $20 million which requires only Minister for

Defence approval but must also be reviewed by the PWC. Similar to the previous category, these

projects are expected to transition to the acquisition phase within 3.5 years. Projects valued

between $8 million and $13.5 million can be approved by the Minister for Defence with no other

review necessary. These projects should transition to Acquisition in under 3 years. Lastly,

projects valued under $8 million can be approved at the service component level and are

expected to transition into acquisition within 2 years.

Tailored Approaches. As discussed earlier, the 2008 Mortimer review recommended a

tailored application of the two-pass process for simpler, less complex projects. At the time, it was

observed that "all major projects are required to undergo the same process – entailing broadly the

same level of detail – regardless of complexity, maturity or risk."[126] The report demonstrated

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[125] Department of Defence, *Defence Capability Manual* (Canberra, ACT: 22 December 2020), 13.
[126] David, Mortimer, *Going to the Next Level: The Report of the Defence Procurement and Sustainment Review* (Canberra, ACT: 18 September 2008), 12.

where 77% of all projects were low risk and the least complex projects and represented 46% of the acquisition budget.[127] It recommended there was scope to increase flexibility and efficiency with a single pass process and also allow the NSC to focus on the more complex higher risk projects.

The latest MoD Capability Development Manual published in December 2020 outlines two different approaches to tailoring the capability development process.[128] The first approach is associated with the level of decision authority and the approval level at project gates and at the two passes. This approach was discussed earlier where project approvals are delegated to specific levels dependent on project cost, i.e. approval by the NSC, joint Ministers or single Minister. The second approach is process-related and is described as a fast track or combined pass approval. The combined pass approval requires only one pass after a project enters gate 0 and is in the IIP. This process is only considered for less complex and lower risk projects and should be recommended by the Investment Committee for consideration by government.[129] Similarly, although the two pass approval process represents the standard process, more complex projects may actually require other intermediate passes due to sensitivity and associated cost.

Conclusion

As outlined in the previous chapter for Canada and the DND, defence acquisition processes are complex with many stakeholders. As expected for the allied nations discussed in this chapter, defence acquisition follows a formal process with major phases and key decision points throughout the process. As the levels of decision authority vary by project cost, complexity and risk within each nation, these levels also vary between nations due to differences

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[127] Ibid., 13.
[128] Department of Defence, *Defence Capability Manual* (Canberra, ACT: 22 December 2020), 39.
[129] Ibid.

in organizational structures, acquisition capacities and defence budgets. The similarities and differences in the respective processes will be discussed in the next chapter with a comparative analysis. In doing so, the author will highlight the progresses made in DND with modifications in the latest PAD drawing on similarities between the processes. In addition, potential opportunities for consideration will also be recommended for future reviews of DND's project approval process.

CHAPTER FOUR: COMPARATIVE ANALYSIS AND RECOMMENDATIONS

The aim of this chapter is to compare the processes described in chapters 2 and 3 and provide an assessment of DND's project approval process with recommendations for future consideration. A similar approach by the Defense Systems Management College in Fort Belvoir, Virginia compared the Defence Acquisition Systems of France, the UK, Germany and the US in a September 1999 study. This study involved a detailed and comprehensive comparison mainly focused on the procurement domain which have since evolved over twenty years. However, it highlighted that "understanding other countries helps us to better understand ourselves."[130] It is through a similar lens this paper was approached. A comparative analysis with the processes of Canada's closest allies will identify similarities and differences to either reinforce processes or recommend opportunities for future consideration.

The analysis will start with a comparison of the overall phases and decision points in the respective processes. It will then turn to specific comparative factors including key decision points, the levels of decision authority and the implementation tailored approaches to the project approval process. Drawing on differences in the levels of decision authority and various stakeholders involved in the overall process, the analysis will then focus discussion on project and process accountability. In so doing, recommendations will be made to reinforce certain aspects of the process and include opportunities for consideration in future reviews of DND's process.

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[130] Tony Kausal, Gertrud Humily, Trevor Taylor, Peter Roller, *A Comparison of the Defence Acquisition Systems of France, United Kingdom, Germany, and the United States* (Fort Belvoir, Virginia: Defence Systems Management College Press, September 1999), X.

Process Comparison

As expected for the nations discussed in this paper and with many defence acquisition reforms, all four nations have a formalized and well-established defence acquisition process. The processes include well-defined phases or stages with clear points of transition from one phase to another. While the individual phases vary between nations in terms of specific activities, the overall process goes through the cycle where a capability gap is identified, options are evaluated, a solution is developed and designed, it is procured and manufactured, then sustained while in service, and finally disposed of at the end of it life. As a project moves through the approval process, there are generally pre-defined gates and decision points where documents are reviewed, cost estimates are analyzed, and approval is sought before proceeding further onto the next phase. An alignment of the three nations' processes is illustrated in Figure 4.1 in comparison to DND's project phases as the benchmark. The UK MoD process appears to be the most directly aligned by phase compared to the US and Australia. That said, the activities described in each of the phases in chapter three facilitate an understanding and estimate of where the phases intersect for this comparison.
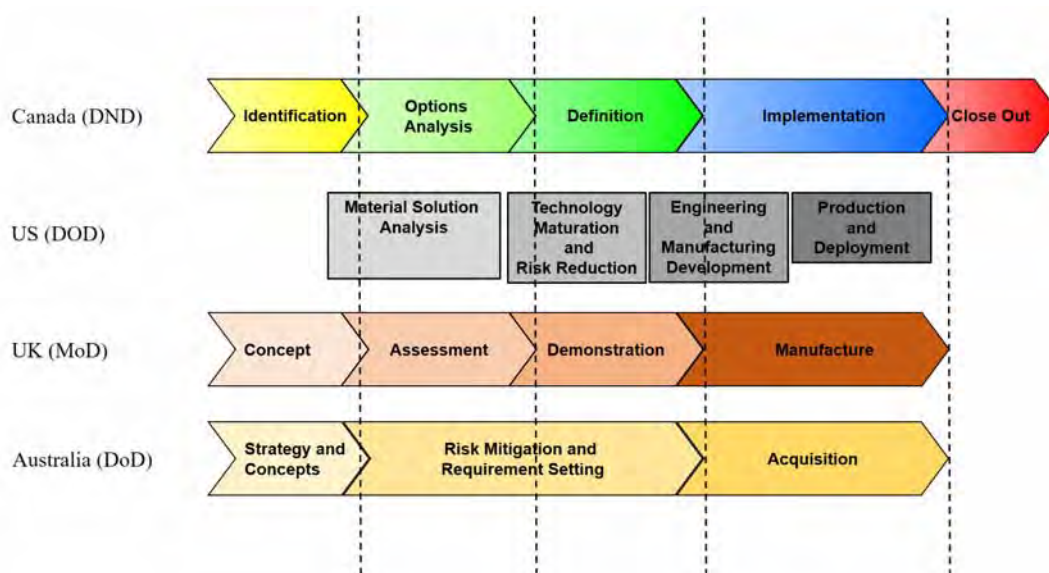

Figure 4.1 – Alignment of Acquisition Process (with DND as benchmark)

Comparison by Specific Factors

This section will consider and compare specific factors which were drawn out and

discussed in the previous two chapters. These factors include process decision points, the levels

of decision authority, and the application of tailored approaches. A summary of this information

for comparison is illustrated in Table 4.1 below which will be discussed in detail.

Table 4.1 – Comparison of Specific Factors in the Project Approval Process

	Canada	**United States**	**United Kingdom**	**Australia**
Process Decision Points	Initial: DCB/IP PA(Def) PA (Imp)	Initial: Milestone A Milestone B Milestone C	Initial Gate (Outline Business Case) Main Gate (Full Business Case)	Initial: Gate 0 First Pass Second Pass
Levels of Decision Authority	*PCRA dependent*: MND TB	*ACATs dependent*: USD (A&S) Head of Component CAE	*Project Cost dependent*: IAC 2-star delegate 1-star delegate IPT Leader	*Project Cost dependent*: NSC Joint Minister Minister for Defence
Tailored Approaches	Combined approval dependent on cost estimates	Middle Tier Acquisition (MTA)	Combined approval dependent on project risk and size	Combined pass approval dependent on project risk and complexity

Process Decision Points. In addition to varying applications of a gating framework, the

processes of all four nations have two major decision points in the process. In all cases,

approvals are required at these decision points for project funding and for the project to proceed

to the next phase. In DND, the first major decision point occurs before transition to Definition where project approval and expenditure authority for Definition is sought. The second decision point occurs after Definition for transition to Implementation where project approval and expenditure authority is sought again but for procurement. Milestones B and C are the major decision points in the US DOD process. Milestone B occurs before the EMD phase and approval is sought to contract or procure only what is necessary for engineering and development. Milestone C occurs after EMD where approval is sought for procurement and/or production. In the UK MoD, the two major decision points are the Initial Gate (Outline Business Case for the government-wide process) and the Main Gate (Final Business Case for the government-wide process). The Initial Gate approval is sought before the Assessment phase where options are developed while the Main Gate approval occurs before transition to the Demonstration phase. The Main Gate approval is the last formalized decision point in the process and therefore authority is granted to procure the capability at this point. Lastly, in Australia DoD, the first pass and second pass approvals occur before and after the Risk Mitigation and Requirement Setting phase. In addition, while although not clear in the UK MoD documentation, Canada, the US and Australia require projects to pass an initial gate prior to entry into the acquisition process. It provides an initial validation of capability requirement and confirms access to funding through a departmental investment plan.

Except in the UK MoD process, the decision points for all nations occur before and after the phase prior to procurement or manufacture of the capability. In the case of the UK MoD, the Initial Gate and Main Gate approvals occur before and after DND's equivalent of Options Analysis. From the activities outlined in the Demonstration phase, it appears that contracts are established in this phase which actually occurs in DND's Implementation phase. As a result, the

Main Gate approval actually occurs prior to the phase in which a contract is awarded and is similar to all other nations' activities. Based on this comparison, DND's process with two major decision points is directly aligned with the processes of its closest allies. The requirements and conditions to be established prior to seeking approvals are similar including the phases around which these approvals are sought. As a result, project approval and expenditure authority approval before Definition and Implementation are supported with no recommendation for future consideration.

Recommendation: The major decision points in the DND project approval process are directly aligned with those of Canada's closest allies. Maintain within the process with no recommended opportunity for future consideration.

Levels of Decision Authority. In all nations, project cost, risk and complexity are the key factors by which the levels of decision authority are defined. Within DND, the PCRA forms the basis of determining the level of decision authority. Project cost is also used to determine the delegated governing body for approvals in addition to procurement and contracting authority in Implementation. Project approval and expenditure authority approval is under the MND for all projects classified PCRA 3 and below while TB Ministers' approval is required for all PCRA 4 projects. In addition, within MND's authority, project costs determine the delegated approval governing body as either PMB (< $50M) or IRMC (>$50M). In the US DOD, ACATs are defined by project cost and the level of decision authority within each ACAT is determined by project risk and complexity. A key observation is that decision authority, despite ACAT or project risk and complexity, remain within the US DOD organization. These factors only influence to what level the authority rests within the department – the USD (A&S) or at the Component level.

In the UK MoD, the level of decision authority is defined project cost. The Investment Approval Committee is the decision authority for category A projects valued at over £400M. Category B projects, valued between £100M and £400M, and category C projects, valued between £20M and £100M, are delegated to different levels as representatives of members of the Investment Approval Committee. Category D projects are valued under £20M and are approved at the service level or by the integrated project team leader. Similar to the US DOD, the level of decision authority for all projects appear to be within the UK MoD. Australia's levels of decision authority are mostly aligned with DND but based on project costs versus PCRA. The Minister for Defence maintains approval authority for projects valued under $20M and requires a joint approval with the Minister for Finance for projects between $20M and $100M. Projects valued over $100M require approval by the NSC.

All decision authorities for both the US DOD and the UK MoD are within the respective departments regardless of project cost, risk and complexity. However, for DND and Australia DoD, there is a threshold limit for the respective Ministers of Defence – PCRA 3 in DND and $20M in DoD. Beyond this threshold, other Ministers are involved in the approval process. That said, in accordance with Figure 2.2, the potential exists for DND to hold all approval authority – similar to the US and the UK – if an OPMCA rating 4 is achieved. DND's ability to actually achieve OPMCA 4 may be questionable but beyond the analysis of this paper. The key take away is that the structure exists to allow a situation where MND holds all decision authority. Secondly, while authority levels and cost thresholds vary by nation, it should be compared relative to overall defence spending or defence acquisition budgets. This level of analysis was not considered in this paper however, the key take away is that project cost thresholds and approval authorities are relative. As a result, in terms of its levels of decision authority, DND

appears to be aligned with the nations compared. This takes relativity into consideration in addition to the potential for all decision authority to be held by the MND. As a result, the current levels of decision authority are supported with no additional recommendation for future consideration.

Recommendation: Decision authorities appear to be similar to the nations compared with consideration given to relativity and the OPMCA criteria. Maintain OPMCA rating and, if possible, improve capacity to achieve OPMCA 4. No other recommended opportunities for future consideration.

   <u>Tailored Approaches</u>. A tailored approach to defence acqusitions is considered important to "deal with the inherent uniqueness of acquisition programs"[131] and to better streamline project processes. It should be no surprise that a tailored approach was recommended in various defence acquisition reviews discussed in the previous chapter. Similar to Canada's approach in the latest PAD, the other nations moved away from a "one size fits all" process and developed different acquisition pathways influenced by project cost, risk and complexity. DND's tailored approach is fundamentally guided by the accuracy of project cost estimates, including full lifecycle costs, and only applicable to projects within the MND's approval authority. Conditional approval is granted at Definition for transition to Implementation if the substantive cost estimate is within +/- 20% of the indicative cost estimate. It can therefore be considered a combined approval if this cost estimate criteria is met. However, the combined approval is still subject to a formal review and approval by PMB or IRMC if cost estimates are between +/-10% and +/- 20%.

   Similar to DND's combined approval, the UK MoD and Australia DoD both have similar approaches for a combined approval based on project risk and complexity. The adopted

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[131] Megan McKernan, Jeffrey Drezner, Jerry Sollinger, *Tailoring the Acquisition Process in the U.S. Department of Defense* (Santa Monica, California: RAND Corporation, 2015), vii.

government-wide acquisition process by the UK MoD would see two potential opportunities for a combined approval. In the first scenario, the Strategic Outline Case could be combined with the Outline Business Case which represents a combined Gate 0 and Initial Gate approval in accordance with the CADMID cycle. Secondly, the Outline Business Case and the Full Business Case could be combined which represents a combined Initial Gate/Main Gate approval in accordance with the CADMID cycle. With respect to Australia DoD, a combined pass approval is available for less complex, lower risk projects which require only one pass after a project enters gate 0 and is in the IIP.

The tailored approach in the US DOD is based on its Adaptive Acquisition Framework illustrated in Figure 3.3. The Middle Tier Acquisition (MTA) pathway is the key tailored process for major equipment acquisitions. It is best-suited for capabilities which are already sufficiently developed to enable rapid prototyping within an overall project or rapid fielding within five years.[132] The MTA pathway is also considered a flexible process which can be employed as a transition to a traditional acquisition process. Although the research highlighted a lack of guidance and oversight for the MTA pathway, it is clear that this approach is focused on innovative technologies (for prototyping) and proven technologies (for fielding). The US DOD has traditionally focused on maintaining a competitive advantage through technology and innovation and the MTA pathway enables this in supporting the pace of technological change.

DND is not at the same technological level as the US DOD in terms of Research and Development (R&D) and capability production. However, the pace of technology change and the need to deploy and employ technologically advanced equipment faster than our adversaries will continue to be a challenge. As a result, the acquisition process must be agile and flexible to

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[132] Defense Acquisition University, "Middle Tier of Acquisition (MTA)," MTA Overview & Benefits | Adaptive Acquisition Framework (dau.edu).

effectively manage technology-driven projects in order to benefit from advanced technology and

avoid technology obsolescence. The need for this approach was outlined in the policy paper,

Toward Agile Procurement for National Defence: Matching the Pace of Technological Change,

by the Canadian Global Affairs Institute. The authors suggest that DND's acquisition system

does not support an iterative approach where a minimum baseline requirement "can be quickly

developed, tested in the field, then adjusted and retested as technology advances."[133] While much

of the discussion points to the procurement process, it highlights a sufficient time lag between

Options Analysis and Implementation which "increases the likelihood of serious technological

lag by the time the equipment is delivered."[134] This not only demonstrates the need for flexibility

in the Identification phase with respect to requirements but also acknowledgement and due

consideration within the approval process to deal with technological change. While it is not

known whether a similar approach will be adopted by the UK MoD and Australia DoD, it is

expected that such an approach will require a cultural shift to include greater risk and acceptance

of failure.[135]

It can be argued that the Urgent Operational Requirements (UOR) process can be

considered DND's approach to such situations. It must also be highlighted that every nation

described in chapter 3 has a similar approach for urgent operational needs. The UOR process is

mostly associated and recognized for deployed operations when forces rapidly deploy and find

themselves "operating without the necessary capabilities."[136] A revisit to the US DOD Adaptive

Acquisition Framework in Figure 3.3 demonstrates its UOR process as another process for rapid

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[133] William Richardson, Kalen Bennett, Douglas Dempster, Philippe Dumas, Caroline Leprince, Kim Richard Nossal, David Perry, Elinor Sloan, Craig Stone, *Toward Agile Procurement for National Defence: Matching the Pace of Technological Change* (Calgary, AB: Canadian Global Affairs Institute, June 2020), 5.

[134] Ibid., 7.

[135] Ibid., 11.

[136] Department of National Defence, *Project Approval Directive* (Ottawa: Canada Communication Group, 2019), 139.

acquisition. As a result, the US DOD considers the UOR process and the MTA as two distinct process pathways. Drawing on this, it is therefore recommended that future consideration be given to a process path, or within current process paths, to innovative or already proven technologies.

Recommendation: It is recommended that a project approval pathway be considered for innovative or already proven technologies to keep pace with technological change and avoid technological lag.

Accountability. While accountability was not specifically identified as a comparison criteria in Table 4.1, the author believes it is relevant for discussion due to the various levels of decision authority and the number of stakeholders involved in the processes. It was also a key underlying consideration for recommendations made in many of the defence acquisition reviews described in the previous chapter. Canada has a unique defence acquisition system where accountability for procurement is mainly shared between three responsible Ministers – MND, Minister of Public Services and Procurement Canada (PSPC), and the Minister responsible for Innovation, Science and Economic Development (ISED) Canada. While this paper is focused mainly on the project approval process and not the procurement domain, accountabilities and its influence on agendas and priorities can lead to project delays and cost overruns due to decisions or deliverables earlier in the process. One such example of challenges due to multi-departmental accountabilities was the objection of the $800-million Sea Sparrow missile project by the Treasury Board (TB) President in 2014 despite endorsement by the Ministers of DND and PSPC.[137] As a result, Prime Minister at the time, Stephen Harper, was forced to issue a letter to bypass the objections and move forward with the project process.

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[137] Jeffrey Collins, *Defence Procurement Canada: Opportunities and Constraints* (Calgary, AB: Canadian Global Affairs Institute, December 2019), 2.

The defence acquisition processes of the other nations also demonstrated where various organizations were responsible for specific elements within the acquisition cycle. The US DOD employs a decentralized approach where individual components identify requirements and, once approved, are also responsible for procurement. Therefore, similar to the earlier discussion on decision authorities, all accountabilities remain within the US DOD and sometimes even lower at the Component level. In both the UK and Australia, when a project is approved, procurement transfers to a centralized organization. In both cases, this centralized procurement authority also operates within the respective defence department. In the UK, the Defence Equipment and Support (DE&S) organization is responsible for defence procurement with oversight by the Minister of Defence. The Capability Acquisition and Sustainment Group (CASG) is responsible for Australia's defence procurement and also operates within the purview of the Department of Defence.

The advantages and disadvantages of a centralized organization versus Canada's tri-departmental approach has been debated over the last decades with supporters on either side. Those who support a single accountable organization argue that project delays and cost overruns are directly due to the shared accountabilities between Ministers.[138] However, others suggest that a single accountable organization will not result in significant benefits to the project approval process.[139] In a 2012 strategic studies paper, Craig Stone suggested that creation of a single agency will have minimal impact as it is mainly attributed to the procurement space but most project delays were observed during the project approval process. He argues that project delays

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[138] Elinor Sloan, *Something Has to Give: Why Delays are the New Reality of Canada's Procurement Strategy* (Calgary: Canadian Defence and Foreign Affairs Institute, 2014) and Alan Williams, *Reinventing Canadian Defence Procurement* (Kingston: Breakout Education Network, 2006).

[139] Craig Stone, *A Separate Defence Procurement Agency* (Calgary: Canadian International Council and Canadian Defence and Foreign Affairs Institute, 2012) and Pierre Lagueux, "Fixing defence procurement: here we go again," *The Hill Times*, 22 March 2010.

are mainly due to the process between Identification and Definition with very little delay actually

attributed to procurement within which shared accountability is mainly concerned.[140] This

opinion differs for Alan Williams who suggests that a single accountability will streamline the

process. He suggests that the different number of departments involved lead to increased

opportunities for disruption, more briefings and greater delays due to differences in

organizational culture and approval processes.[141]

From a project cost perspective, Stone also suggests that cost overruns are mainly due to

"inaccurate initial cost estimates, changing costs of inputs and changing user requirements."[142]

Improved cost estimation was a major consideration in the 2019 PAD and it included increased

rigour and support in this domain through costing expertise and guidance. The emphasis on

costing estimates is also evident in the tailored process paths described earlier. The cost of inputs

and user requirements are important factors in the procurement process to maximize industrial

benefits while delivering defence capabilities in a timely manner. This conundrum was

highlighted by Elinor Sloan who suggested that "no procurement strategy can achieve these two

goals at once."[143] This challenge was also recently described by Alan Williams in an Ottawa

Citizen article on the National Shipbuilding Procurement Strategy. He suggested that one factor

contributing to cost overruns is changing user requirements to meet and satisfy industry

opportunities where a similar class ship could cost one-third of the cost to build the Canadian

Surface Combatant (CSC).[144]

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[140] Craig Stone, *A Separate Defence Procurement Agency* (Calgary: Canadian International Council and Canadian Defence and Foreign Affairs Institute, 2012), 10.

[141] Alan Williams, *Fixing Defence Procurement* (September 2016).

[142] Ibid., 13.

[143] Elinor Sloan, *Something Has to Give: Why Delays are the New Reality of Canada's Procurement Strategy* (Calgary: Canadian Defence and Foreign Affairs Institute, 2014).

[144] Alan Williams, "Williams: Under this plan, Canada's new warships will never be built," *Ottawa Citizen,* 29 March 2021.

The debate on accountability for defence acquisitions in Canada highlights strengths and weaknesses. While the comparison with other nations clearly isolates Canada's accountability structure, the author believes the analysis is insufficient to recommend a single accountable structure solely based on alignment with our allies. This is also influenced by the differences in opinion by experts in the field and would require a more detailed analysis. As a result, a recommended accountability structure is beyond the scope of this paper. That said, it is acknowledged that different organizational cultures and priorities could and will impact decision-making which could lead to delays. As noted earlier, key stakeholder engagements and involvement of other departments occur earlier in the process starting in Options Analysis. As a result, the process should be able to address these realities and ensure processes are well-defined with clarity to mitigate potential issues and delays. This would be more important for more complex and high risk projects where approvals will certainly involve external key stakeholders for decisions.

Although the current government has indicated its desire to move towards a single Defence Procurement Agency, options are still being considered. That said, it remains unknown if and how Canada's multi-departmental system will change in the future. Projects should therefore be better prepared to face this reality early in the process in Identification when defining capability requirements. Detailed requirements to address capability gaps which are aligned with strategic policy are key to avoid potential delays in later phases of the process. In a 2015 Vimy paper, Senior Security and Defence Analyst at the CDA Institute, David Perry, identified where ill-defined requirements resulted in significant project delays in the Implementation phase. He suggested that two issues surround identifying requirements in DND: (1) requirements are either beyond what is actually necessary; and (2) they are directed to a

specific solution and not general capabilities.[145] Perry also highlighted "a fundamental cultural and communication issue between the military and the rest of bureaucracy"[146] and suggested that requirements must be easily understood and communicated with public servants.

The focus on capability definition and requirements is not Canada-specific but is considered of greater importance due to potential challenges with shared accountabilities. A focus on capability definition and requirements was highlighted in the 2003 Kinnaird review which recommended a "close and sustained attention to the vital task of capability definition and assessment."[147] A similar point was echoed in the 2008 Mortimer review with respect to the attention required for projects entering the Defence Capability Plan.[148] As a result, all projects, including those subject to IRPDA review, should reinforce oversight on defining capability requirements which are easily understood and communicated. Requirements should be general enough and not target a specific solution which might not actually satisfy the capability gap. That said, where a specific solution or off-the-shelf capability is most appropriate, requirements should be respected and an appropriate process path applied to deliver the capability.

Recommendation: _It is recommended that the project approval process reinforces oversight on capability requirements which are easily understood and communicated. Requirements should be general enough and be careful not to target a specific solution which may not actually satisfy the capability gap. However, where an off-the-shelf solution is most appropriate, requirements should be respected and due consideration be given during the project approval process._

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[145] Dave Perry, _Putting the 'Armed' Back Into The Canadian Armed Forces_ (Ottawa: Conference of Defence Associations Institute Vimy Paper Series, January 2015), 11.

[146] Ibid., 12.

[147] Malcolm Kinnaird, _Defence Procurement Review 2003: An Independent Review_ (Canberra, ACT: 2003), iv.

[148] David, Mortimer, _Going to the Next Level: The Report of the Defence Procurement and Sustainment Review_ (Canberra, ACT: 18 September 2008), xi.

In addition to shared accountability at the ministerial level, there are also shared accountabilities internally throughout the project approval process. This can be seen with the various delegated boards and also as the project transfers between project leads, from project sponsor to project implementer. As a result, accountability shifts throughout the process between project leads while decision-making is split between the different governing boards such as PMB and IRMC. In order to address this internal accountability concern, the KPMG report suggested better performance metrics to hold individuals accountable.[149] Time is the key resource in the project approval process and seems like the most appropriate performance metric for accountability.

As outlined in chapter 1, the PAD identifies a benchmark of two years each for Options Analysis and Definition. This benchmark is general for all projects and do not differentiate by project risk, complexity or materiel. Although not developed in the PAD, the KPMG report recommended that a matrix-type approach with realistic benchmarks and aggressive targets be established and differentiated by project type.[150] Williams also made a similar recommendation in a September 2016 article *Fixing Defence Procurement*. He recommended that performance measures be developed on acquisition cycle-times to identify variances including internal delays and those related to external approvals.[151] While performance benchmarks were not specifically drawn out in the discussions due to insufficient data, some were highlighted in Australia DoD's process. The total time expectation for projects in the first two phases were categorized according to project risk and complexity ranging from four years to within two years. As a result,

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[149] Department of National Defence. *KPMG Report: Project Approval Process Renewal*, Defence Renewal Change Management Services, #W8484-14P2KP/B PWGSC, 05 February 2016, 12.
[150] Ibid., 34.
[151] Alan Williams, *Fixing Defence Procurement* (September 2016), 6.

it is therefore recommended that better performance benchmarks be considered by project type or categories in future reviews of the project approval process.

Recommendation: It is recommended that better performance benchmarks be considered in future reviews of the project approval process differentiated by project type versus the current two-year benchmark for Options Analysis and Definition respectively.

Conclusion

The comparative analysis of the acquisition cycle between DND and its closest allies provides an opportunity to reinforce process strengths while also identifying potential opportunities for future consideration. The comparison variables of decision points, levels of decision authority and tailored approaches highlight many similarities and alignment with Canada's allies. However, the comparison highlighted one recommendation for future consideration with respect to technological change and technological lag. In addition, due to Canada's unique multi-departmental and shared accountability in defence acquisitions, two recommendations were made to address accountability concerns and reduce the potential for any associated project delays.

CHAPTER FIVE: CONCLUSION

Like many other first world nations, the Canadian government and DND has been criticized for project delays and cost overruns in defence acquisitions. Many reviews over time led to process improvements and delegated authorities aimed at avoiding delays and cost overruns. The PAPR initiative, supported by an independent KPMG review, influenced many changes in the latest 2019 edition of the PAD including an increased focus on cost estimates and tailored project process paths. The aim of this paper was to assess the improvements to the project approval process in the PAD and identify potential opportunities for consideration in future evolutions of the PAD. The comparative analysis with allied nations concludes that improvements in the latest PAD were significant and very much aligned with our allies. Based on the levels of decision authorities and stakeholders involved, it also confirmed Canada's unique defence acquisition organization and shared accountability in comparison to our allies. However, it is considered that insufficient research and analysis in this paper could recommend a preferred accountability structure based solely on this difference. Therefore, recommendations were made to mitigate potential challenges due to different organizational cultures and handover points inherent with shared accountability.

The analysis demonstrates that parallel processes exist between nations with relatively the same decision points and similar levels of decision authority. In the last decade, DND has dedicated much effort to improve its project management competencies and capacities to overcome project delays and cost overruns. In so doing, it succeeded in achieving an OPMCA 3 rating which increased authorities of the MND. As a result, the levels of decision authority appear closely aligned with the compared nations at the big picture departmental level. A more detailed research and analysis of relative defence acquisition budgets, defence spending and

organizational structures would be required to compare authorities at specific appointments. That said, DND must continue its efforts to maintain or improve its OPMCA rating and hold increased authorities to better streamline the process.

An adaptive and tailored approach in defence acquisition processes was considered essential in many of the reviews. Like the compared nations, DND has successfully integrated different project approval paths in the PAD. This should facilitate faster project cycle times as a formal second approval and expenditure authority may not be necessary if cost estimates are accurate enough. This should help streamline the process and also address potential cost overruns with support from costing expertise addressed in the PAD. If used properly, financial oversight and costing expertise will better enable project teams early and throughout the process to avoid potential delays and escalation of costs later in the process. In addition to the process paths in the PAD, the analysis also recommends that consideration be given to a process path focused on proven technologies and the avoidance of technological lag. This should be identified and recognized early in the process so due consideration is given during the project approval process.

Accountability was a common underlying thread in many of the reviews discussed during the comparative analysis. This led defence organizations through organizational changes with attempts to both streamline processes and to address accountability challenges. However, in all nations compared, the organizations responsible for both capability development and procurement fell under the respective defence organization. Canada's defence acquisition structure is unique with multiple departments and shared accountabilities. Whether Canada should move toward a single accountability structure was beyond the analysis of this paper. However, a focus on capability definition and performance benchmarks were recommended as

opportunities for consideration to mitigate challenges associated with differences in organizational culture, priorities, and handover points of responsibility.

As project teams and decision authorities apply the tailored process paths in new and future projects, there will be a better understanding of the efficiencies gained. While it was assessed that project timelines would be improved with a combined approval conditional on cost estimates, a more detailed analysis is required early in the process. As a result, it is recommended that future research and analysis be done to determine the additional time required and whether efficiencies are gained in the overall process.

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