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CANADIAN DEFENCE PROCUREMENT STRATEGY:

CAN CANADA'S ACQUISITION PROCESS BE ACCELERATED AND MADE MORE EFFICIENT?

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ABSTRACT

The United Kingdom (UK), United States (US), Australia, and Canada have all undergone major reform initiatives in the last 10 years in an attempt to acquire equipment needed to address defence capability gaps. Canada's acquisition process takes, on average, nine years from initial identification to contract award and an additional six years for equipment production and subsequent project closure. Historically, defence capital acquisitions experienced performance shortfalls, schedule delays and programme cost increases, highlighting the need to improve the capital acquisition process.

This paper proposes that Canada should adopt a comprehensive Integrated Project Team (IPT) management approach at the outset of new defence projects in order to increase the efficiency of its acquisition process.

This paper begins with an examination of the acquisition processes of the UK, US, Australia and Canada with the aim of identifying their respective best practices related to capital acquisition. An assessment is made of each acquisition process that culminates in a comparative assessment of common initiatives including reform of acquisition organizations, government policy, and professionalization of acquisition workforce, all which further to enable IPT management approach.

The paper argues that Canada can streamline its acquisition process by adopting best practices supporting an IPT management approach at the outset of new projects. In addition, a number of recommendations for further research/implementation related to supporting enabling IPT functions are included to optimize the potential acquisition process efficiencies.

The Department of National Defence has taken a good look at military procurement. It knows that the timeline for delivery for new equipment is wanting. It has taken nine years from the identification of a need to the final awarding of a contract; then it has taken another six years for the actual production and delivery of the equipment. The military has been acquiring equipment and systems late in comparison to their needs—too late. Often by the time new platforms are delivered, new technology has rendered the equipment out of date.[1]

- Hon. Gordon O'Connor, Minister of National Defence

INTRODUCTION

The requirement for defence systems originates from the foreign and defence policies of a nation and the role its military is expected to fulfill in matters of security and defence of the country. The type and quantity of systems acquired for defence to fulfill its role are largely based on a compromise between what capability is required, when it is required, what can be afforded and what is technologically feasible either for the nation to manufacture and/or what is available for purchase on the international market.[2]

Leading up to the end of the Cold War in 1990, there was a significant change towards more relaxed relations between the United States and the Soviet Union. It also marked a period when most North Atlantic Treaty Organization (NATO) countries were reducing their military forces. Canada's 1989 federal Budget announced reductions of the number of Department of National Defence (DND) personnel, cancelling capital

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[1] From the Minister of National Defence's Testimony to the Standing Committee on National Defence, 6 February 2007, Canada, Standing Committee on National Defence, "NDDN - Edited Evidence * NDDN * Number 033 (Official Version)," http://cmte.parl.gc.ca/cmte/CommitteePublication.aspx?SourceId=192746&Lang=1&PARLSES=391&JNT=0&COM=10470; Internet; accessed 22 February 2008.

[2] K. Hambleton, *et al*, *Conquering Complexity: Lessons for Defence Systems Acquisition*, ed. Dr. A. Weiss. (Norwich: TSO The Stationery Office, 2005), xi.

equipment acquisitions identified in the 1987 White Paper,[3] and closures of the two Canadian bases in Germany. Further reductions in defence spending fell out of the 1994 federal Budget in response to pressure on the government to tackle the national deficit problem.[4]

In the years that followed through to 1998, DND went through significant cost-cutting measures because of downsizing, re-organizing and re-engineering efforts. Concurrent with these transformational activities, the DND overall budget fell from $12B in 1993-1994 to $9.8B in 1998-1999.[5] As a result, the allocated funding levels were sufficient to pay personnel and support operations, but left very little for the capital procurement program.[6]

The April 1998 Report of the Auditor General of Canada focused on the buying of Major Capital Equipment in DND. The report described the traditional problem areas associated with defence capital acquisitions, which were reported on in previous audits. It revealed performance shortfalls, schedule delays, and program cost increases, and highlighted a need to improve the capital acquisition process.[7]

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[3] The 1987 White Paper was built around a strategic assessment of a continuation of the Cold War. Canada was posturing itself to re-invigorate its commitment to NATO and the Defence of North America. Major capital expenditures such as nuclear powered submarines were planned to close the perceived defence capability gap.

[4] Canada, Parliamentary Research Branch, "Defence Policy Review (MR-112E)," http://dsp-psd.pwgsc.gc.ca/Collection-R/LoPBdP/MR/mr112-e.htm; Internet; accessed 7 March 2008.

[5] Canada, Department of National Defence, "DND/CF Budget," http://www.dnd.ca/site/about/budget_e.asp; Internet; accessed 3 May 2008.

[6] Parliament. House of Commons, Standing Committee on National Defence and Veterans Affairs, *Procurement Study* (Ottawa: The Committee, 2000), 2.

7 Canada, Office of the Auditor General, "OAG Chapter 4—National Defence—Buying Major Capital Equipment," http://www.oag-bvg.gc.ca/internet/English/aud_ch_oag_199804_4_e_9310.html#0.2.2Z141Z1.RL0RBG.EYQPRE.W4; Internet; accessed 8 March 2008.

In 2000, the Standing Committee on National Defence and Veterans Affairs (SCONDVA) Procurement Study identified two principal factors important to the acquisition of defence equipment:

> First, the Department of National Defence must have some form of a stable and predictable budget in order to plan effective equipment purchasing with a view to preserve the capability of the Canadian Forces. Second, the procurement process itself, including the environment in which it takes place, must be managed properly.[8]

The Procurement Study also acknowledged that Industry had a role to play as a critical element of sovereignty and an essential pillar of national security. The Committee heard testimony that DND encourages industry participation much earlier in the procurement process, such as invitations to provide feedback on draft statements of requirements and requests for proposals before they are finalized.[9]

In 2003, the Minister's Advisory Committee on Administrative Efficiency conducted a review of DND. The committee's mandate was to review the administrative efficiency of DND and went further to analyze the national-level management framework and practices.[10] The committee identified two areas that directly related to acquisition, namely governance and procurement. Among the findings made by the committee

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[8] Parliament, House of Commons, Standing Committee on National Defence and Veterans Affairs, *Procurement Study* (Ottawa: The Committee, 2000), 2.

[9] *Ibid*., 20.

[10] Canada, Advisory Committee on Administrative Efficiency, "DND/CF : Achieving Administrative Efficiency," http://www.dnd.ca/site/Focus/AE/indexAE_e.htm; Internet; accessed 2 March 2008, iv.

concerning overall governance, the following are directly associated with the acquisition of new equipment:

a. Corporate decision-making is often more transactional than strategic, relying heavily on consensus and an extensive network of committees;

b. Strategic planning tends to be based on a 'bottom up' as opposed to 'top down' identification of future force structure and capability requirements for the CF, which results in demands on resources over the longer term that far exceed the funds available (this approach results in the building of a Defence program that is unaffordable under planned spending levels, which in turn creates a climate of internal competition for limited resources and an ongoing crisis in managing shortfalls); and

c. Relatively high rates of 'churn'[11] among senior management leave the CF with many General or Flag Officers (and senior non-commissioned members) who have too little time at the strategic level before retirement to develop the depth and breadth of experience required to contribute fully to institutional leadership at the most senior levels (this also applies to some areas of the civilian executive cadre).[12]

The findings made by the committee concerning procurement associated with the acquisition of new equipment included:

a. Procurement is universally viewed as being a slow and cumbersome process that does not fully respond to Defence's needs:

b. Acquisition of major military systems takes too long, with the average being over 15 years for major capital equipment procurement;

c. There is substantial duplication of effort or functional overlap between DND and the Public Works and Government Services Canada (PWGSC);

d. DND's internal approval process involves excessive non-value-added review and an undifferentiated approach to risk management;

e. Capital projects are not always closed in a timely fashion; and

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[11] From the Report: The term 'churn' is used to describe disruptive turnover rates of key personnel.

[12] *Ibid*.,vii.

f. The total value of projects approved for inclusion in the long-term capital plan far exceeds available funding, yet projects included in the plan with little or no likelihood of approval consume staff resources and administrative overhead.[13]

The committee found that the approval process for a capital project takes on average between 15-16 years as depicted in figure 1 and "involves too many successive reviews, occupies too much senior management time for little value added, and fails, from a process perspective, to distinguish between common goods and complex weapon systems."[14] The committee also observed that the "current bottom up process for approving projects leads to the development of a capital program which may not reflect the priorities dictated by the capability requirements of the Canadian Forces (CF)."[15]

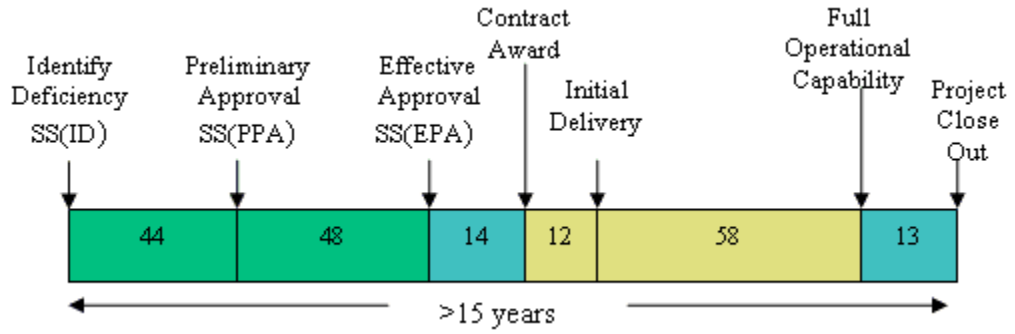

Figure 1: Current Acquisition Timelines
Source: Advisory Committee on Administrative Efficiency[16]

For example, a critical examination of some projects revealed that they were approved simply if they completed the lengthy approval process. There were insufficient points for assessing the overall progress of projects, resulting in limited opportunities to determine if they were still relevant and merited further investment in time and resources

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[13] *Ibid*., vii.

[14] *Ibid*., 33.

[15] *Ibid*.

[16] *Ibid*., 122-123.

to secure final approval.[17] The committee cited examples where people assigned to a project

> often can continue to work at defining requirements and staffing approval documentation for years, even if the project has little chance of eventual approval. The aggregate cost of projects approved in this fashion for inclusion in the long-term capital plan far exceed the funds available for capital procurement; hence, overall capital program demand is unaffordable and unfunded projects continue to slip into future years. In short, there are too many projects chasing too few dollars. This ties up scarce project management personnel who could be devoted only to higher priority projects.[18]

The Government of Canada federal Budget of 2006 among other things laid a foundation for rebuilding the Canadian Forces with a $5.3B investment in its five-year Canada First Defence Plan that included major procurement projects.[19] In Budget 2008 the Government outlined its commitment to a long-term Canada First Defence Strategy to rebuild the military based on predictable long-term funding with automatic funding increases of 2% from the current 1.5% beginning in 2011-2012, providing an additional $12B to the CF over the next 20 years.[20]

The CF will certainly benefit from the government's major reinvestment; however, can the lengthy front-end portion[21] of the acquisition process be streamlined to maximize the available resources?

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[17] *Ibid*.,33.

[18] *Ibid.*

[19] Canada, Government of Canada, "Budget 2006 Defence Funding," http://www.fin.gc.ca/budget06/bp/bpc3de.htm#defence; Internet; accessed 3 May 2008.

[20] Canada, Government of Canada, "Budget 2008 Canada First Defence Strategy," http://www.budget.gc.ca/2008/plan/chap4b-eng.asp; Internet; accessed 3 May 2008.

[21] Front-end portion of the acquisition process encompasses the period from project initiation to contract award – the first nine years in Figure 1.

The aim of this paper is to demonstrate that DND/CF should adopt a comprehensive Integrated Project Team (IPT) management approach at the outset of new projects in order to increase the efficiency of the acquisition process. Supporting this thesis, this paper will examine how organizational reform, clear policy framework, and competency based acquisition training in the acquisition process can further enable an effective IPT management approach. The investigation will explore the acquisition process supporting the IPT management approach of three of Canada's closest Allies, beginning with the United Kingdom (UK).

United Kingdom

The UK Ministry of Defence (MoD) Acquisition Operating Framework (AOF) goal is to facilitate the MoD acquisition process of translating industrial capacity into effective military capability. Within this framework, the MoD defines acquisition as:

> the activities of setting and managing requirements, negotiating and letting contracts, project and technology management, support and termination or disposal based on a 'through life'[22] approach to acquiring military capability.[23]

This definition captures the principal activities that make-up the UK acquisition processes which are shaped further by Defence Policy, Defence Industrial Policy, Departmental Planning, and Through Life Capability Management.[24]

The most recent changes to MoD acquisition are building on the sweeping

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[22] Through Life Management is the philosophy that brings together the behaviours, systems, processes and tools to deliver and manage projects through the acquisition lifecycle (initial capability gap to final disposal). It encompasses a total system engineering approach to delivering capability, management of total costs from initial investment to in-service support, with proactive stakeholder involvement and comprehensive integration of processes through IPTs.

[23] United Kingdom, Ministry of Defence, "What is Acquisition » Strategic Guide to Acquisition » Strategic Layer » AOF » UK MOD," http://www.aof.mod.uk/aofcontent/strategic/guide/sg_whatisacq.htm; Internet; accessed 3 March 2008.

[24] *Ibid*.

changes to the defence acquisition framework following a Strategic Defence Review (SDR) in 1998 that tackled the way in which the MoD acquired goods and services. The SDR highlighted the National Audit Office identified cost overruns averaging 37 month delays on projects both in 1996 and 1997 which did not translate into best value for money. More importantly, the UK felt it was not keeping pace with rapid technological change and leveraging that technology to optimize operational capability.[25]

The Smart Procurement Initiative (SPI), renamed simply Smart Acquisition in 2000, had a goal to improve how the MoD acquired fighting equipment for the Armed Services. Smart Acquisition reorganized agencies and associated acquisition processes to optimize the management of complex procurement activities of equipment to meet the capability requirements of the MoD.[26]

Historically, major equipment acquisition projects under went at least four project reviews and approvals "from a committee of the most senior MoD officers and officials before manufacturing could be started."[27] Any project following this program approval process experiencing technical or management difficulties to meet technical performance, schedule or cost targets would require additional approvals following updates to forecast schedules, further delaying the equipment capability introduction into service.

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[25] United Kingdom, Ministry of Defence, "1998 Strategic Defence Review," http://www.mod.uk/DefenceInternet/AboutDefence/CorporatePublications/PolicyStrategyandPlanning/StrategicDefenceReview.htm; Internet; accessed 17 February 2008, Chapter 8, Para 151-152.

[26] United Kingdom, Ministry of Defence, "The Ministry of Defence Policy Paper No. 4, Defence Acquisition," http://www.mod.uk/DefenceInternet/AboutDefence/CorporatePublications/PolicyStrategyandPlanning/PolicyPapers/PolicyPaperNo4DefenceAcquisition.htm; Internet; accessed 17 February 2008, 2.

[27] David A. Kirkpatrick, *UK Perspective On Defence Equipment Acquisition* (Singapore: Institute of Defence and Strategic Studies, Nanyang Technological University, 2003), 9.

Prior to the introduction of the Smart Acquisition, the major criticisms of the UK acquisition process was that it took too long, was too complex, and the defence equipment was out of date by the time it was introduced into service because the operational requirement had evolved. Smart Acquisition was conceived in an effort to streamline the acquisition process by rationalizing the equipment approvals process.[28] To that end, "the number of points at which a major equipment programme is approved for continuance has been cut from four to two - at project initiation (Initial Gate), and prior to the main investment decision (Main Gate)."[29] Figure 2 depicts the Initial and Main Gate Approvals and transition where the IPT transfers to the appropriate Logistic Command for implementation into service.

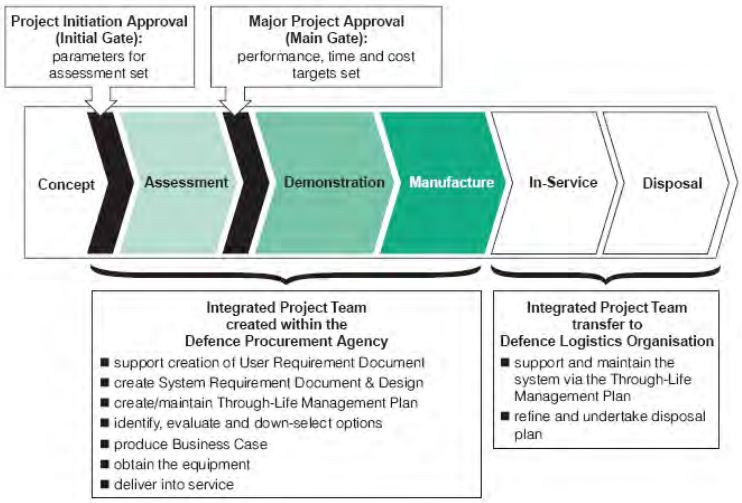

Figure 2 – Smart Acquisition Cycle
Source: NAO Major Projects Report 1999[30]

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[28] United Kingdom, Ministry of Defence, " Policy Paper no 4. Defence Acquisition," http://www.mod.uk/DefenceInternet/AboutDefence/CorporatePublications/PolicyStrategyandPlanning/PolicyPapers/PolicyPaperNo4DefenceAcquisition.htm; Internet; accessed 17 February 2008, 5.

[29] *Ibid.*, 5.

[30] United Kingdom, Ministry of Defence, "Major Projects Report 1999, 6 July 2000," http://www.nao.org.uk/publications/nao_reports/chronindex.asp?type=vfm (accessed 2/17/2008).

The work leading to Initial gate approval was meant to investigate the wide variety of options and determine possible trade-offs to meet the equipment capability desired while investing in all available options to reduce the overall risk in terms of schedule, cost and performance. This early investment in risk mitigation increased the level of confidence that the project would be delivered on time, on cost and provided the desired performance to meet the capability requirement at Main Gate approval. Smart Acquisition incorporated an incremental approach to reduce the risk associated with historical challenges of changing requirements, new technological developments, or lessons learned from experience. The goal was to introduce a baseline capability into service early and incorporate equipment upgrades in an incremental fashion as technology evolved. To address lessons from past procurement failures, where the right equipment was delivered too late or the equipment procured did not incorporate the required capability, Smart Acquisition incorporated investment in risk reduction initiatives at early stages of the project and evaluated effective trade-offs with the aim of reducing risk before finalizing schedule, cost and performance requirements.[31]

The IPT management approach was considered the most efficient method to deliver on the risk reduction measures particularly early on in a projects lifecycle. Close cooperation at the beginning of a project would result in early identification of potential risks and more efficient development and project oversight throughout its lifecycle. This premise was based on results from a three-month period in November 1998 among numerous UK major programmes including its new Type 23 Frigate and the VC10

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[31] United Kingdom, Ministry of Defence, " Policy Paper no 4. Defence Acquisition," http://www.mod.uk/DefenceInternet/AboutDefence/CorporatePublications/PolicyStrategyandPlanning/PolicyPapers/PolicyPaperNo4DefenceAcquisition.htm; Internet; accessed 17 February 2008, 5-6.

Tanker and Transport Aircraft. The NAO highlighted the Secretary of State for Defence, George Robertson's assessment of the IPT success:

> The 10 pilot projects where we have been trialing Smart Procurement techniques and the IPT concept are already starting to indicate new savings running to several hundreds of millions of pounds over their life. They have also identified significant opportunities to get equipment into service faster, or--for equipment already in service-- improve its availability and reliability. For example, the Type 23 frigate IPT is looking to reduce the length of an upgrade programme by 30 per cent and the VC10 IPT has already identified initiatives to achieve a 10 per cent increase in serviceability.[32]

Subsequent to the successful IPT management approach trial and four years after the implementation of Smart Acquisition, the National Accounting Office Major Projects Report for 2004 concluded that there did not appear to be any improvement in performance from the previous years. For those projects initiated under Smart Acquisition it was concluded that project staff failed to apply many of the principles intended to improve project performance.[33] In addition, the Enabling Acquisition Change (EAC) report issued in 2006 was commissioned

> to advise whether further changes should be made to the MoD structures, organization, process or culture and behaviours in order to facilitate good Through Life Capability Management.[34]

While some further organizational changes were recommended, the EAC report focused on the need to establish a culture and behavioural change across organizational lines.

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[32] United Kingdom, House of Commons Library, "UK Defence Procurement Policy," www.parliament.uk/commons/lib/research/rp2003/rp03-078.pdf; Internet; accessed 17 February 2008, 20.

[33] United Kingdom, Ministry of Defence, "NAO Reports Index – Major Projects Report, 8 November 2004," http://www.nao.org.uk/publications/nao_reports/chronindex.asp?type=vfm; Internet; accessed 17 February 2008, 1.

[34] United Kingdom, Ministry of Defence, "Enabling Acquisition Change," http://www.mod.uk/DefenceInternet/AboutDefence/CorporatePublications/FinanceandProcurementPublications/DACP/EnablingAcquisitionChange.htm; Internet; accessed 17 February 2008, 4.

These challenges are currently being addressed within the Defence Acquisition Change Programme (DACP)[35] complemented by direction set out in the UK's Defence Industrial Strategy (DIS). These continuous improvements are designed to meet rapidly changing threats and the unpredictable operational environment. Concurrently, the MoD is committed to being more agile and flexible in delivering military capability. This is particularly important because Government expects new fighting equipment to remain in service longer and thorough through life planning will enable frequent equipment upgrades to keep abreast of rapid technological advances. Industry will continue to play a key role and the UK Government is committed to building on its Defence Industrial Strategy to ensure critical industrial capabilities are sustained.[36]

The current UK MoD strategic framework for acquisition is structured around a MoD Unified Customer, effectively implementing revised policy guidance, and improved departmental planning in support of through life capability management (cradle to grave). This new strategic framework is supported through application of lessons learned from previous Smart Acquisition reform initiatives, research, and development, transparent and open relationships with industry and investment in the MoD personnel and teams.[37]

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[35] The Defence Acquisition Change Programme (DACP) is defined as "a single coherent acquisition reform programme. Established in the summer of 2006, to deliver the structural, organisation, process, cultural and behavioural changes needed to facilitate good Through Life Capability Management as identified in the Defence Industrial Strategy (DIS) and the recommendations from the Enabling Acquisition Change (EAC) report." (http://www.mod.uk/DefenceInternet/AboutDefence/WhatWeDo/FinanceandProcurement/DACP/)

36 United Kingdom, Ministry of Defence, "Why Change » Strategic Guide to Acquisition » Strategic Layer » AOF » UK MOD," http://www.aof.mod.uk/aofcontent/strategic/guide/sg_whychange.htm; Internet; accessed 28 March 2008.

[37] United Kingdom, Ministry of Defence, "How Acquisition Works » Strategic Guide to Acquisition » Strategic Layer » AOF » UK MOD," http://www.aof.mod.uk/aofcontent/strategic/guide/sg_howacqworks.htm; Internet; accessed 28 March 2008.

The MoD unified customer comprises of five principal stakeholders that each play a role in the decision-making processes to deliver UK defence capability. These include the Equipment Capability Customer (ECC), the end user, Defence Equipment & Support (DE&S), Science Innovation Technology (SIT) and the centre representative. The unified customer is responsible for assessing industrial capacity to develop military capability that "allows the MoD to make decisions across the Defence Lines of Development (DLoD)[38] and are consistent with DIS strategic objectives"[39] and is guided by the MOD capability change planning process.

The capability change planning process is governed by a joint organizational framework under the Deputy Chief of Defence Staff (Equipment Capability) who chairs the Joint Capability Board (JCB) and leads the ECC. The JCB meets monthly (formal) and weekly (informal) and is primarily responsible for the capability change plan and delivery of capability through direction and guidance to the Directors of Equipment Capability (DEC). The JCB also allocates the necessary resources to facilitate the organization's ability to meet the defence programme objectives, including identification of linkages and or dependencies between DEC Capability areas. Finally, the JCB is the

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[38] DLoD are essential support enablers to bring capability into reality. They include the provision of training, provision of equipment, motivated and available personnel, information, and concepts and doctrine. These are further supported by having the necessary infrastructure, organization and broad logistic support specialty areas for UK Forces to be able to interoperate with other government departments but also to work with its allies to execute any assigned missions and tasks.

[39] United Kingdom, Ministry of Defence, "Defence Lines of Development (DLoD / DLoDs) » Strategic Guide to Acquisition » Strategic Layer » AOF » UK MOD," http://www.aof.mod.uk/aofcontent/strategic/guide/sg_dlod.htm; Internet; accessed 28 March 2008.

communication focal point with external stakeholders, and any records of decisions are published on the ECC portal.[40]

The ECC, is the project sponsor and is responsible for developing the project planning, programming of upgrades, support and associated costs for the first 10 years of service. The ECC also leads the capability change planning process to identify the best capability solution available consistent with policy goals, allocated resources and constraints. The user is responsible for plans and programs, operating costs and equipment support costs, and ensures that DE&S provides the agreed level of in-year support. This includes the management of the implementation plan for the entry into service and where required integration with existing systems in accordance with specified requirements. Integration assurance at Main Gate approval, for example, assesses the integration of new capability with existing systems to deliver an effective military capability from the entry into service date. DE&S is responsible for the delivery of equipment and in-year support to the front line user and remains conversant with best commercial practices, cost effective through-life management, and logistic support chains. DE&S also maintains the engineering and support plan, and is responsible for project safety, environmental program and quality assurance. SIT is responsible for assisting the ECC in investigating test proposals and advising on technical risk of the project. The centre representative assists the team by setting the policy and acquisition strategy framework and advising the team on central planning and resource budget

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[40] United Kingdom, Ministry of Defence, "Governance »Through Life Capability Management » Acquisition Business » Operational Layer » AOF » UK MOD," http://www.aof.mod.uk/aofcontent/operational/business/capabilitymanagement/capabilitymanagement_governance.htm; Internet; accessed 29 March 2008.

allocations. [41] Figure 3 depicts the aforementioned Unified Customer and stakeholder interrelationship in capability based decisions.

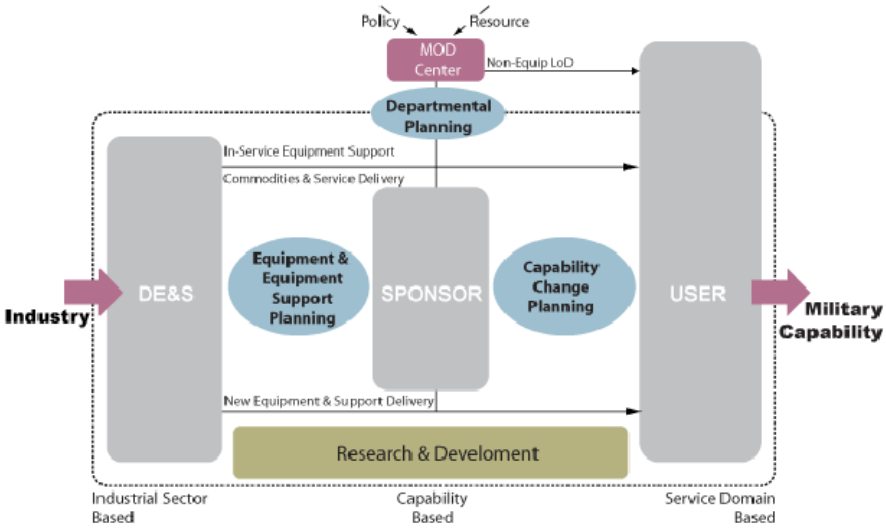

Figure 3 – Unified Customer Interrelationship in Capability Based Decisions.
Source: UK Ministry of Defence, Strategic Guide to Acquisition[42]

IPTs are the key management team approach of the ECC whose mandate is to manage individual equipment projects in order to procure equipment faster, cheaper and better. IPT personnel involved in the project primarily come from the MoD service branches and civil servants. Other new team members of the IPTs are representatives from UK industrial suppliers with relevant expertise and are included in IPTs as an enabler to achieve value for money for both Defence and Industry as part of the UK's DIS.[43] [44] The designed breadth of expertise and multi-disciplinary nature of IPTs are key

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[41] United Kingdom, Ministry of Defence, "MOD Unified Customer » Strategic Guide to Acquisition » Strategic Layer » AOF » UK MOD," http://www.aof.mod.uk/aofcontent/strategic/guide/sg_unifiedcust.htm; Internet; accessed 28 March 2008.

[42] *Ibid.*

[43] The DIS, originating from a wider Defence Industrial Policy published in 2002, was developed to address the need for equipment the Armed Forces require, on time while providing best value for taxpayer's money. The DIS' aim is to promote a sustainable industrial base in the UK to ensure availability of those capabilities now and in the future that contribute to national security. To realize the enabling

elements of Smart Acquisition and is complemented by an ECC that focuses on the commitment to a through life approach, from initial procurement development through to in-service support to final disposal.[45] IPTs must use the Through Life Management Plan (TLMP) approach as it "remains at the heart of managing project and programme delivery throughout the life cycle and across all Defence Lines of Development (DLoD)"[46] for the UK.

TLMP is comprised of two integral components. The first is the management of capability change planning which identifies "the changes required across all DLoDs to provide the right capabilities, at the right time within available resources."[47] The second is the management of capability delivery which

> identifies the need for a new or enhanced equipment requirement, a programme Board may be formed. The function of the board is to provide governance during acquisition lifecycle, and take full account of capability/industrial threats and opportunities to achieve coherence across DLoDs. Once the equipment enters into service the responsibilities are transferred to an availability working group led by the user.[48]

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features of the DIS, the relationship between the MoD and the defence industrial base is one that must provide best value for the UK taxpayer and a return on investment to shareholders based through good performance and economic policy.

[44] United Kingdom, Ministry of Defence, "Defence Industrial Strategy – 2005," http://www.mod.uk/DefenceInternet/DefenceFor/Business/DefenceIndustrialStrategy/; Internet; accessed 25 March 2008, 132-133.

[45] United Kingdom, Ministry of Defence, " Policy Paper no 4. Defence Acquisition," http://www.mod.uk/DefenceInternet/AboutDefence/CorporatePublications/PolicyStrategyandPlanning/PolicyPapers/PolicyPaperNo4DefenceAcquisition.htm; Internet; accessed 17 February 2008, 5.

[46] United Kingdom, Ministry of Defence, "Through Life Management » Strategic Guide to Acquisition » Strategic Layer » AOF » UK MOD," http://www.aof.mod.uk/aofcontent/strategic/guide/sg_tlm.htm; Internet; accessed 28 March 2008.

[47] United Kingdom, Ministry of Defence, "What is » Through Life Capability Management » Acquisition Business » Operational Layer » AOF » UK MOD," http://www.aof.mod.uk/aofcontent/operational/business/capabilitymanagement/capabilitymanagement_whatis.htm; Internet; accessed 28 March 2008.

[48] *Ibid.*

To assist members of IPTs the DACP initiative has implemented the development and professionalization of capability management training initiatives. It was recognized that "effective capability management requires personnel to develop new knowledge, skills, and attitudes through an integrated training programme."[49] The MoD has initiated basic level capability management training which is mandatory for all ECC and requirements management personnel and should be taken by MoD personnel assigned to front line units involved with capability management roles. Where space permits, industry partners may attend the basic capability management courses. Those personnel who are assigned to the Capability Planning Groups (CPGs) and Capability Management Groups (CMGs) within the ECC receive training designed to impart knowledge and techniques to assist personnel in their roles as members of a CPG or CMG and develop skills to manage complex multidimensional problems.[50]

Further strengthening the skills and techniques and to improve the level of professionalism of acquisition professionals, the MoD has invested in standardized training to acquire competencies in project and programme management to meet MoD defence objectives. The MoD has established a Project Management Development Programme with professional development courses for its personnel to achieve project management competencies ranging from foundational through to expert. The training is based on the Association for Project Management (APM) Body of Knowledge (BoK). This training and its associated internationally recognized qualifications serves as a baseline from which to benchmark Project Management Professionalism of MoD

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[49] *Ibid.*

[50] *Ibid.*

personnel.[51] The APM specialized competency training is one of several available project management development opportunities that make up the portfolio of the MoD's training and education programme for personnel in the acquisition community.

In summary, the UK has faced repeated schedule delays and cost overruns for defence related equipment acquisitions. There are several observations that Canada should take note of to streamline its acquisition process. Despite organizational reform under SMART Acquisition to optimize the management of complex procurement over six years, deficiencies remained that resulted in the UK embarking upon continuous improvement of the new acquisition organization under the DACP. The ongoing DACP is transforming the organizational culture by implementing increased knowledge management/acquisition training to enable the through life management approach. This initiative is complemented by the framework outlined in the UK's DIS, which recognizes the important contribution Industry makes in delivering military capability while promoting a dynamic, sustainable defence manufacturing base. While the MoD Unified customer is responsible for assessing the industrial capacity to develop military capability to input into the MoD governance structure, the IPT management approach is the means by which a project is implemented from the initial outset of a project. The IPT leader has the overall responsibility to manage the activities through the MoD Acquisition Operating Framework from defining capability requirements, contracting, project management, in-service support through to disposal. The UK's organizational framework, policies, and training initiatives are structured to enable a streamlined

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[51] United Kingdom, Ministry of Defence, "Professionalism » Project & Programme Management » Acquisition Business » Operational Layer » AOF » UK MOD," http://www.aof.mod.uk/aofcontent/operational/business/ppm/ppm_professional.htm; Internet; accessed 29 March 2008.

acquisition through IPT management approach at the beginning of new programmes that has shown significant time and cost savings. Such an approach demonstrates excellent potential to streamline Canada's acquisition process and realize similar efficiencies in managing schedule, cost and performance.

The paper will now examine the acquisition process supporting the IPT management approach of the United States (US).

United States

The acquisition policy strategy of the US has changed frequently during the past decades. New equipment acquisitions to support the US war fighter have seen changes in policies to address problems identified stemming from regular performance review cycles of the DOD. The US Congress controls the purse strings that support the President's Defense Budget that among other things include spending in support of Defense acquisition. With growing Defense budgets over the years, the Congress increased its oversight and legislation[52] to shape the policies and organizations, such as the establishment of the Under Secretary of Defence (Acquisition and Technology) (USD (A&T)) organization in 1986. Every year, an oversight committee hears testimony from such personnel as the Secretary of Defence and the Secretaries of the Army, Navy and Air Force along with senior military leaders on the President's Budget. It is through this

[52] Legislation included Defense Improvement Act of 1986 to define policy on costs contractors submitted to the Government for payment and on conflict of interest guidelines involving former DOD officials. Goldwater-Nichols Act (1986) revised the role the Joint Chiefs of Staff in acquisition and requirements determination with emphasis on 'joint'. Acquisition Workforce Improvement Act of 1990 mandated training and professional requirements for the Defense Acquisition personnel.

oversight committee and various sub-committees that potential changes to policy and the acquisition system can be affected. [53]

The commencement of the US acquisition process starts with the generation of the requirements, which is the responsibility of the Departments of the Navy, Army and Air Force. The Army and Navy have centralized processes whereas the Air Force has a decentralized process.[54] All three services determine their individual requirements through ongoing assessments of current capability and future capability requirements. Internal reviews of all three services will validate the requirements and forward them, when required, to the Joint Requirements Oversight Committee (JROC)[55] for validation. Once a program has been validated the DOD assigns a designation to ensure the proper level of management level review.[56]

In 2006 the Under Secretary of Defense for Acquisition, Technology and Logistics, was required to review acquisition structures and capabilities of the Department of Defense (DoD) under the National Defense Authorizations Act. One of the outcomes of the review was the identification of Requirements Management Training Certification Program for requirements personnel to be in place by September 2008. The

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[53] B. A. Kausal, *et al*, "A Comparison of Defense Acquisition Systems of France, Great Britain and the United States (2000)," http://www.dau.mil/pubs/misc/acq-comp-euro00.asp; Internet; accessed 4 April 2008, 4-9,10.

[54] The Air Force requirements are separated along the lines of the Operational Command structure such as Air Combat Command, where there is a Director of Requirements responsible for prioritizing and championing within the Air Force for subsequent review and validation by JROC, as required.

[55] The JROC is chaired by Vice Chairman JCS with Vice-Chiefs of the military services as voting members of the council. The JROC is primarily involved in the requirements approval process, but it also participates in the Defense Acquisition Board to ensure the program is meeting the military needs.

[56] B. A. Kausal, *et al*, "A Comparison of Defense Acquisition Systems of France, Great Britain and the United States (2000)," http://www.dau.mil/pubs/misc/acq-comp-euro00.asp; Internet; accessed 4 April 2008, 4-26 thru 4-45.

review confirmed, what is perhaps considered common knowledge, that requirements and acquisition communities have critical interdependent roles. The review revealed that most requirements personnel "received limited acquisition training because they were not viewed as part of the acquisition workforce."[57] The expectation is that this investment in individual training will improve the quality of defined requirements and enable a better acquisition solution to capability gaps. The range of training includes a 10 week Program Managers Course, as well as other academic training towards advanced degrees with a particular emphasis on critical thinking, complex problem solving and ethical decision making.[58]

DOD today has a new Defense Acquisition System which is captured in a new set of 5000 series DOD Directives and the Joint Capabilities Integration and Development System (JCIDS). The aim of JCIDS is to enable the project manager and his team to have the flexibility to make sound risk management decisions, to reduce cycle times, and to introduce programs into service better, faster and cheaper. This aim is supported by establishing an acquisition framework for program stability, validating requirements, managing costs and budget, leveraging joint capability through innovative acquisition and spiral development.[59]

The JCIDS was designed to support the JROC in fulfilling its statutory role to validate and prioritize the joint war fighting requirements of all US military services.

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[57] United States, Department of Defense, "Defence Acquisition Structures and Capabilities Review Report June 2007," http://www.dau.mil/Spotlight/doc/Final%20Final%20Report.pdf; Internet; accessed 20 February 2008, 3-31.

[58] *Ibid.*

[59] United States, Department of Defense, "Acquisition Policy & Strategy," https://acc.dau.mil/CommunityBrowser.aspx?id=18462&lang=en-US; Internet; accessed 29 March 2008.

The Chairman of the Joint Chiefs of Staff Instruction 3170.01F (JCIDS) outlines the three key processes that support the delivery of capability to the war fighter. These include the requirements process, the acquisition process and the Planning, Programming, Budgeting, and Execution (PPBE) process. These three processes are interrelated and support the delivery of the required capability to enable the war fighters to successfully execute their assigned missions. The JROC makes capability-based decisions founded on the validated output of the requirements process, supporting the acquisition process by generating performance criteria which then can be used to assess the procurement of the right weapons systems. These processes also support the PPBE process with prioritization and affordability advice.[60]

The JCIDS process commences with the completion of a Capabilities Based Assessment (CBA) which is founded on prevalent joint doctrine or future concepts of operation. The CBA identifies capability requirements and the desired operational performance criteria to execute missions that may have been identified as shortfalls in existing weapon systems. Next is the preparation of a Joint Capabilities Document (JCD) or Initial Capabilities Document (ICD) based on the results of the CBA. The JROC evaluates the JCD or ICD for endorsement of the capability gaps and whether the technical solution sets are feasible and affordable.[61]

The JROC can make a decision that the identified capability gaps in the CBA are operationally acceptable requiring no further action. An alternative course of action is the approval of changes to organizations, doctrine etc… in lieu of pursuing an equipment

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[60] United States, Department of Defense, "Joint Capabilities Integration & Development System (JCIDS)," https://acc.dau.mil/CommunityBrowser.aspx?id=28947; Internet; accessed 30 March 2008, 1-2.

[61] *Ibid*.,2.

solution to an identified capability gap. Following through on the process, the Service department lead carries out further analysis to determine the best technical solution which in turn is captured in a Capabilities Development Document (CDD) that specifies the system technical performance criteria desired to meet key performance parameters to satisfy the capability gap.[62]

The JROC reviews the CDD and identified key performance parameters with an eye towards approval of a development program based on risks associated with program cost, schedule and state of technology. The JROC decision is a key factor in whether the Milestone Decision Authority (MDA)[63] will approve the development program. Following the development process, the JROC is given a Capability Production Document (CPD) that captures the actual performance and lessons learned, with the objective of deciding if the evaluated system solution satisfies the original capability gaps at an affordable cost. An approved CPD is forwarded to the MDA for the approval required for the program to go into production/delivery.[64] The JCIDS process shown in Figure 4 was designed to serve as a challenge function and to support critical decisions on procurement of future weapon system capability development by supporting top down, national security driven weapon system acquisition.

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[62] *Ibid.*

[63] The MDA is the individual designated authority to approve a program to proceed to the next phase in the process depending on cost criteria. The cost criteria vary based on cost for research, development, test and evaluation of a weapon system or the overall production costs.

[64] *Ibid*., 3.

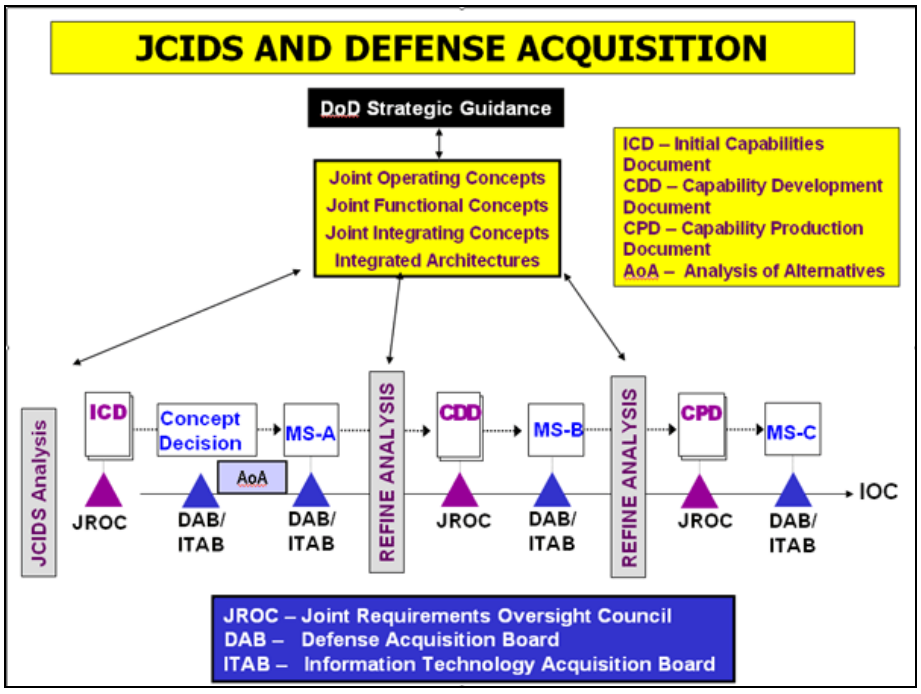

Figure 4: JCIDS and Defense Acquisition
Source: US Department of Defense Directive 5000.1

The JCIDS policy states "new solution sets must be crafted to deliver technologically sound, safe, testable, sustainable, and affordable increments of militarily useful capability that consider all elements of performance critical to future operations."[65] Spiral development and evolutionary development/modernization are principal strategies for delivering timely and cost-effective technical solutions to capability gaps.[66]

To manage the delivery of solutions to identified capability gaps the US government and industry have favoured the use of the Integrated Product Team (IPT)[67] management approach for 13 years now, with a goal of procuring the best product

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[65] *Ibid*., B-1.

[66] *Ibid.*

[67] In the US context IPT are Integrated 'Product' Teams (IPTs) vice 'Project', and are an integral part of the defense acquisition oversight and review process. The Secretary of Defense has directed that the Department perform as many acquisition functions as possible, including oversight and review, using IPTs.

possible for the customer. Each IPT is often made up of the user and experts from a variety of disciplines such as engineering, contracting, and logistics. The majority of IPTs will also have a member of industry participate as an IPT team member and generally this varies depending on the project. IPTs initially were used in the day-to-day project management function of the project office. Due to the success experienced in the use of the IPT management approach in project offices, the concept was expanded to incorporate the overarching management organizations as part of the US Defense Acquisition Reform Program as shown in Figure 5.[68]

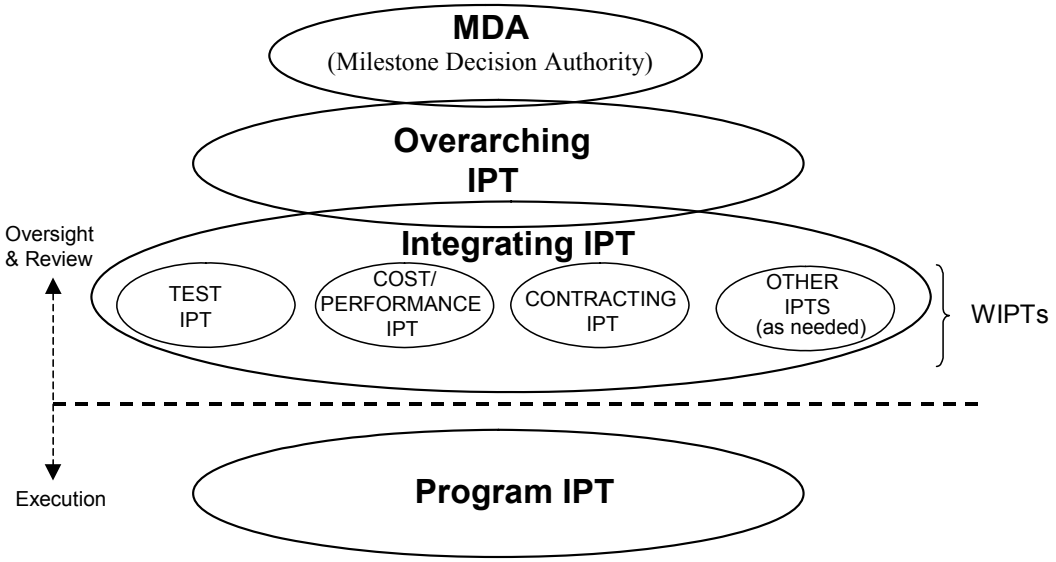

Figure 5: Defense Acquisition Integrated Product Team (IPT) Structure
Source : Kausal, B., "A Comparison of Defense Acquisition Systems of France, Great Britain and the United States (2000)."p.4-42 [69]

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[68] United States, Congressional Research Service, Library of Congress, "Defense and Acquisition Reform: Status and Current Issues, 9 January 2002," http://digital.library.unt.edu/govdocs/crs/search/?q="Defense+procurement"&t=dc.subject; Internet; accessed 4 April 2008, 6.

[69] For each program, there will be an Overarching IPT (OIPT) and at least one Working IPT (WIPT). WIPTs will focus on a particular topic, such as test, cost/performance, contracting, etc. An Integrating IPT will coordinate WIPT efforts and cover all topics not otherwise assigned to another IPT.

The level of industry participation in IPTs is limited by invitation to Working IPT (WIPT) or Integrating IPT (IIPT) meetings, with the purpose of providing information, advice, and recommendations. The US Federal Advisory Committee Act precludes industry representatives from being formal members of the IPT and they may not be present during IPT strategy deliberations, discussions on competition or other matters that would give them a marketing or competitive advantage. In addition, support contractors may participate in WIPTs and IIPTs but may not make commitments on behalf of or represent the organization they support. The sensitive nature of OIPTs preclude industry and support contractors from participation, however the IPT Team Leader may permit support contractors to make presentations to the OIPT where required, and only after signing non-disclosure agreements.[70]

The US also has Defense Industrial direction encapsulated in Presidential Executive Order 12919 issued on 3 June 1994 and dealing with National Defense Industrial Resources Preparedness. The purpose of the Order was to delegate necessary authorities and address national defense industrial policies and programs under the US Defence Production Act of 1950.[71] The policy outlines that

> the US must have an industrial and technology base capable of meeting national defense requirements, and capable of contributing to the technological superiority of its defense equipment in peacetime and in times of national

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[70] United States, Department of Defense, "Defense Acquisition Guidebook," https://akss.dau.mil/dag/DoD5000.asp?view=document&rf=GuideBook\IG_c10.3.1.asp; Internet; accessed 4 April 2008, Chapter 10.3.3.

[71] United States, Department of Defense, "*Executive Order 12919, 03 June, 1994*," http://www.acq.osd.mil/ip/; Internet; accessed 5 April 2008.

> emergency. The domestic industrial and technological base is the foundation for national defense preparedness.[72]

US acquisition processes, encompass the capability assessment, research and development, and industry participation in IPTs is solidly grounded in the Executive Order. Federal departments and agencies that are responsible for defense acquisition or for industrial resources needed to support defense acquisition shall:

> (a) identify requirements for the full spectrum of national security emergencies, including military, industrial, and essential civilian demand;
>
> (b) assess continually the capability of the domestic industrial and technological base to satisfy requirements in peacetime and times of national emergency, specifically evaluating the availability of adequate industrial resource and production sources, including subcontractors and suppliers, materials, skilled labor, and professional and technical personnel;
>
> (c) be prepared, in the event of a potential threat to the security of the United States, to take actions necessary to ensure the availability of adequate industrial resources and production capability, including services and critical technology for national defense requirements;
>
> (d) improve the efficiency and responsiveness, to defense requirements, of the domestic industrial base; and
>
> (e) foster cooperation between the defense and commercial sectors for research and development and for acquisition of materials, components, and equipment to enhance industrial base efficiency and responsiveness.[73]

In a US General Accounting Office Report on Best Practices to the Chairman and Ranking Member of the US Senate Committee on Armed Services Subcommittee on Readiness and Management Support, it was concluded that IPTs work. The results conveyed that

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[72] *Ibid*.

[73] *Ibid.*

> effective integrated product teams can make significant product development decisions quickly and without relying on consultations with organizations outside the team. These teams have developed and delivered superior products within predicted time frames and budgets – often cutting calendar time in half compared with earlier products developed without such teams.[74]

In summary, the US acquisition process faces challenges of schedule delays and cost overruns for defence related equipment acquisitions like the UK. Organizationally the Departments of the Navy, Army, and Air Force are the requirements generators. US legislation and policies place an emphasis on 'joint' acquisition and leveraging industry participation early on in the acquisition process. Legislation has also supported the professionalization of the acquisition workforce and entrenched the IPT management approach. US acquisition of defense equipment is structured around the IPT management approach as a fundamental best practice given the significant savings in schedule and cost that IPTs have demonstrated. So successful at the individual project level, the US has incorporated the IPT construct into its internal governance and approval structures. So as in the case of the UK, the changes to the US acquisition process that have the greatest potential to improve Canada's acquisition process relate to the use of a comprehensive IPT management approach.

The paper will continue in its investigation of acquisition best practices with an examination of the acquisition process supporting the IPT management approach of Australia.

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[74] United States, Government Accountability Office, "GAO-01-510 Best Practices: DOD Teaming Practices Not Achieving Potential Results," http://searching.gao.gov/query.html?charset=iso-8859-1&bmo=0&bdy=0&byr=0&amo=0&ady=0&ayr=0&rf=4&qt=+IPT&st=26; Internet; accessed 14 May 2008.

Australia

The Australian Government conducted a Defence Procurement Review in 2003 that resulted in further restructuring of defence acquisition departments in the Defence Department to create

> an effective system for assessing, acquiring and maintaining defence capability that is vital for the effectiveness of the Australian Defence Force (ADF) and ultimately the defence and security of Australia.[75]

There had been previous reform initiatives implemented throughout the 1990's to address identified acquisition problems. However cost overruns of major capital equipment (MCE) projects continued to increase pressures on financial resources available for defence, necessitating changes in structures, processes and organizational culture.[76]

The procurement review concluded that there was no single cause to the problems contributing to schedule delays, cost overruns and reduced performance in the introduction of major defence capability. Therefore, the organizational process was analyzed and the Defence Management Organization (DMO) was included in the latest transformation initiatives. The DMO is responsible for the management of projects and each stage of the acquisition process, the procurement review considered that the DMO should be included if further reform initiatives were to realize the desired overall

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[75] Australia, Department of the Prime Minister and Cabinet and Chair of the Secretaries Task Force on Defence Procurement, "Defence Procurement Review 2003," http://www.defence.gov.au/publications/dpr180903.pdf; Internet; accessed 15 February 2008, iii.

[76] *Ibid*., i.

management efficiencies and better forecasting through whole-of-life management approach to defence related equipment.[77]

One year following the procurement review, a Capability Defence Group (CDG) was created, a Defence Advisory Board established, and a new Defence Capability Development Manual (DCDM) released.[78] The CDG utilizes the DCDM as the authoritative guidance to develop defence proposals, to fill gaps in defence capability and to manage the major capital equipment projects with other organizational stakeholders. The Strategy Planning Framework Handbook (SPFH) is a companion document to the DCDM and intends to "unify the functions of formulating strategic guidance, deliberate planning for operations and capability development."[79] The aim of the SPFH, is to outline a framework of strategic level defence documents that are congruent, coherent and comprehensive through application of improved integrated staff work and decision making.[80]

The DCDM identifies the beginning of the Requirements Phase with the identification of a capability need that has been incorporated in the rolling ten year Defence Capability Plan (DCP). The DCP is an approved list of capability needs identified as a broadly defined equipment solution or a desired operational effect. It also has the expected year of delivery of the solution and indicative estimates for total project

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[77] Australia, Department of the Prime Minister and Cabinet and Chair of the Secretaries Task Force on Defence Procurement, "Defence Procurement Review 2003," http://www.defence.gov.au/publications/dpr180903.pdf; Internet; accessed 15 February 2008, iii.

[78] Australia, Department of Defence, "Capability Development Executive- History," http://www.defence.gov.au/capability/aboutus/history.asp ; Internet; accessed 5 April 2008.

[79] Australia, Department of Defence, "Strategy Planning Framework Handbook," http://www.defence.gov.au/publications/SPFH2006.pdf; Internet; accessed 6 April 2008, iii.

[80] *Ibid*., iii.

costs (acquisition plus personnel and operating costs over the whole life-cycle of the equipment). To move beyond the needs identification phase into requirements phase requires that the project proposal be of a high standard given the significant investment decision by Government associated with MCE acquisitions. The time and resources allocated to this part of the acquisition process are to ensure that any future force structure changes generate a sustainable strategic benefit if the Government invests in the proposed capability. An assessment of risk in areas of technology, schedule and whole-life costs are also considered as part of the approval milestones. Figure 6 depicts an overview of the Defence capability milestones during the Requirements Phase life cycle. In addition to the two Government approval milestones as First Pass approval and Second Pass[81] approval there are internal Defence approvals that precede Government consideration. The internal reviews are convened by the Capability Development Board and Defence Capability Committee.[82]

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[81] Figure 6 chronological layout of actions in yellow and blue boxes above the horizontal timeline depicts Departmental activity supporting First pass and Second Pass approvals by government. The chronological layout of yellow boxes found below the horizontal timeline describes the requisite supporting documentation that will be developed and submitted at each of the sequential approval milestone meetings.

[82] Australia, Department of Defence, "Defence Capability Development Manual," http://www.defence.gov.au/publications/dcdm.pdf; Internet; accessed 19 February 2008, 28-29.

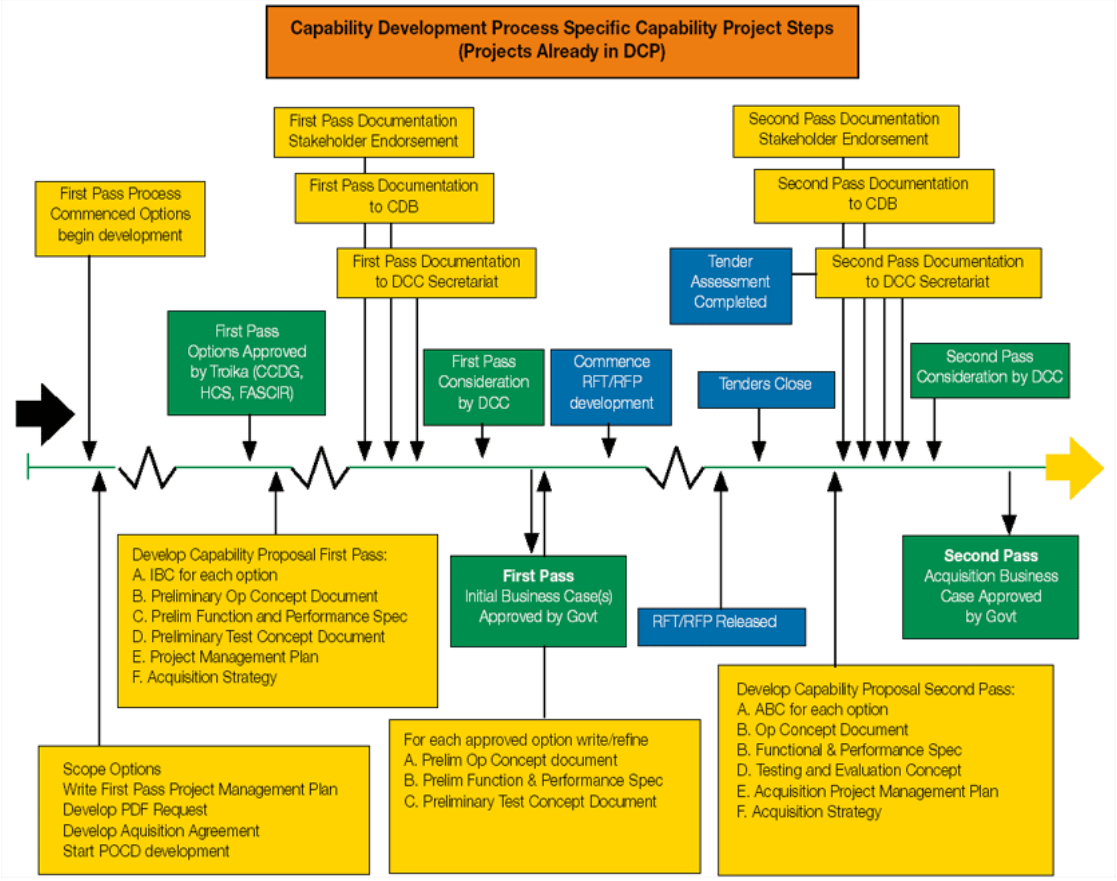

Figure 6: Overview of the Requirements Phase
Source: Defence Capability Development Manual p. 29.

The First Pass approval is the first stage where the Government approves capability development option(s) to provide more detailed option(s) analysis and substantive cost estimates. The Second Pass approval is the second stage where the Government approves the acquisition of a capability system with substantive costs, well-defined schedule and allocation of through-life support costs. There are number of key organizational mechanisms used by CDG to managing the investigation of capability options, and consolidating/acting on guidance/decisions by committees or Government.[83]

[83] *Ibid.,* 29-30.

The Foreign Affairs and Defence and Trade Committee (The Committee) in their Report on the Inquiry into Materiel Acquisition and Management in Defence highlighted that the definition of the capability requirement and the standards selected by CDG personnel can shape the outcome of the capability that will be subsequently delivered into service. The personnel involved in this definition process must be well versed in the practicalities of acquisition and the constraints and challenges that cost and schedule will impose. In addition, the knowledge and competency of acquisition personnel can play a significant role in the realization of desired capability.[84]

The Committee also found that industry is in an ideal position to assist Defence to clarify capability requirements, citing provisions for such support in the Defence Department's Capability Systems Life Cycle Management Manual. It recommended that "Industry involvement should commence during the Requirements Phase with the aim of ensuring the range of options for reducing capability shortfalls are technically feasible, affordable and represent all the practical alternatives."[85]

The committee also believes that early

> engagement of industry in the Requirements Phase promotes the generation of innovative options, a better understanding by industry of Defence's capability requirements and better prospects for the early identification of costs and risks.[86]

This participation of industry early in the process would lead to a reduction of effort in the development of an acquisition proposal and subsequently save industry and Defence

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[84] Australia, Foreign Affairs, Defence and Trade References Committee, Report on the Inquiry into Materiel Acquisition and Management in Defence, Canberra: The Committee, 2003, http://www.aph.gov.au/Senate/committee/FADT_CTTE/dmo/report/report.pdf; Internet; accessed 17 February 2008, 22.

[85] *Ibid*., 23.

[86] *Ibid.*

time and money.[87]

The participation of industry in Defence Acquisition has evolved with the Government introducing a Defence and Industrial Policy Statement in 2007. The Australian government acknowledges the challenges it has in realizing its goal of ensuring the cost-effective delivery of capability and in-service support to the Australian Defence Force. Not having a defence manufacturing sector to ensure the country is able to generate and respond to capability gaps, it has had to develop a strategy to enable the maintenance of a self-reliant weapon system supply and support capability in the Australian Defence Industry.[88] Among other initiatives to improve communications with industry, the Policy Statement outlined an initiative for the establishment of a two-way industry-Defence secondment program. The aim of the program is to develop a mutual understanding of each other's expertise and will include individuals working in acquisition, procurement, and capability planning.[89]

The Australian defence industry is also engaged in dialogue through the Capability Development Advisory Forum (CDAF).[90] The CDAF enables the integral participation of industry in the overall capability development process. This facilitates an exchange of views between Defence and industry in the capability development process and permits Defence an opportunity to measure the strength of capability proposals. It is also through the CDAF that Defence and industry develop a common level of

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[87] *Ibid.*

[88] Australian Government, Department of Defence, "Defence and Industry Policy Statement," http://www.defence.gov.au/dmo/id/dips/DIPR_Policy_Statement_2007.pdf; Internet; accessed 17 February 2008, 8-9.

[89] *Ibid*., 31.

[90] *Ibid*., 32-33.

understanding of the current and emerging technologies, cost drivers, and the state that industry is in or likely to be in to provide necessary competencies for investing in future capability development.[91]

One of the principal mechanisms that Australia uses to leverage industry participation is the IPT. An IPT is established at the beginning of each capability development project to enable the systematic and thorough passage of the capability project through the Requirements Phase. IPTs provide guidance and technical expertise from appropriate stakeholders to ensure all essential elements of the development capability proposal are included in a timely and efficient manner. The IPT will support the acquisition process through internal Defence Committees that will be convened during the process to consider initial assessments to address capability gaps, and provide guidance/approvals of final documentation prior to support First/Second Pass approvals.[92]

The Australian Department of Defence Magazine reported that the Royal Australian Air Force's (RAAF) F/A-18 Hornet fleet upgrade project was the recipient of the Australian Institute of Project Management Achievement Award for 2006 in recognition of the excellence in project management in Australia. The hornet upgrade project had an estimated value of $500 million, which developed and integrated a range of technical enhancements to improve situational awareness, targeting capability and survivability for the F/A-18 Hornet fleet. The Australia IPT, that included the United States and Canada as key stakeholders, had 30 staff across three countries coordinating

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[91] *Ibid*., 33,106.

[92] *Ibid*., 31-32.

some 20 organisations including defence industry, with 30 sites in five countries. The Project Manager, Matthew Hall, stated "the Integrated Project Team (IPT) construct was instrumental in the [project's] success."[93]

In summary, Australia faces similar challenges of schedule delays and cost overruns for defence related equipment acquisitions as the UK and US. The last decade has seen major organizational reform of principal structures involved in Australia's acquisition process into one organization. This reform is supported by revised policies, strategies, training, and acquisition handbook to enable the streamlining of the acquisition process. The Government's initiatives to support industry participation through a secondment program and increased participation and communication have further enabled the IPT management approach of projects in Australia and have contributed to success in recent acquisition programmes. Again, the Australian acquisition framework reinforces the value of the IPT management approach, also found in the UK and the US, in streamlining the acquisition processes and demonstrates the significant potential for improving the acquisition process in Canada.

The paper will finalize the investigation of acquisition best practices with an examination of the acquisition process of Canada.

Canada

At the Defence Management Committee (DMC) of 12 May 2006, a revised strategic governance framework for DND/CF was approved in principle by the Deputy Minister and the Chief of Defence Staff (CDS). The proposed changes revolve around a

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[93] Australia, Department of Defence, "Defence Magazine - Accolades for Top Projects," http://www.defence.gov.au/defencemagazine/editions/200609/groups/dmo.htm; Internet; accessed 14 May 2008.

common Treasury Board definition of governance as "the processes and structures through which decision making authority is exercised."[94] The intent of the new DND/CF governance model is to address long-standing deficiencies in national level governance by adopting corporate best practices. This new common approach to governance is seen to complement the recent CF transformation initiative which was in response to an evolving defence and security environment. The outcomes of the CF transformation are evidenced in changes in the CF command and control structure for operations and equally important, changes/realignment of strategic enablers in areas related to force generation and force development.[95]

The new governance construct is designed to provide better support to senior level decision makers and to foster a cultural change in corporate governance while nurturing sound management practices, encouraging collaborative efforts in achieving strategic goals and strengthening accountability. Figure 7 depicts the three tiers of the new governance model within DND/CF. The first tier is designed to support the Minister of National Defence (MND), Chief of Defence Staff (CDS) and the Deputy Minister (DM). The second tier is designed to support the Vice-Chief of Defence Staff (VCDS) in his role as Chief of Staff to the CDS and DM in the management of DND/CF resources. The third tier is designed to support the Chief of Force Development (CFD) and Chief of

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[94] Canada, NDHQ, "Implementation Directive for a Revised Strategic Governance Model in DND/CF." File No. DMCS 24133, dated 21 Jun 2007, 1.

[95] *Ibid*., 2-3.

Programme (CProg) in the development and delivery of the Defence Services Programme.[96]

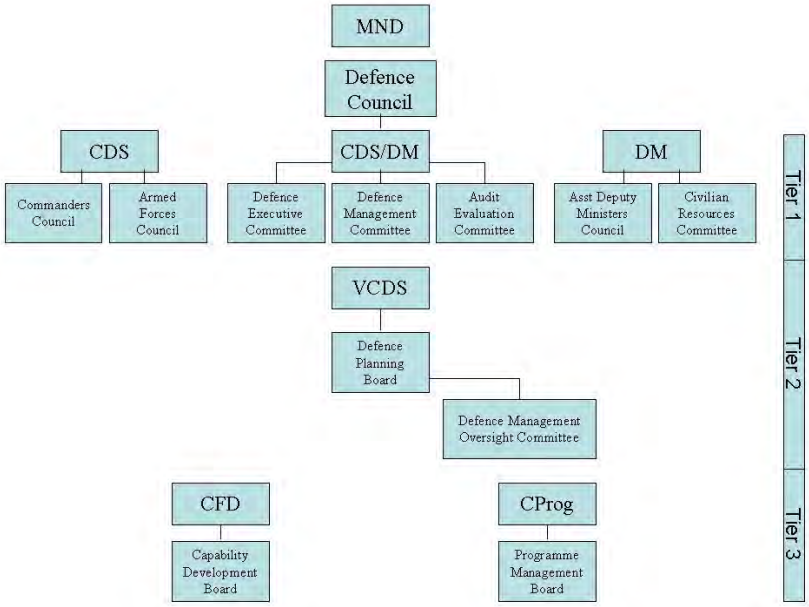

Figure 7: DND/CF Strategic Governance Model
Source: Implementation Directive for Revised Strategic Governance Model in DND/CF.

The key committees affecting capital acquisition in the DND/CF are the Defence Management Committee (DMC), Defence Planning Board (DPB), Capability Development Board (CDB) and Programme Management Board (PMB). DMC is co-chaired by the CDS and DM and the committee is responsible for delivery of the Defence Plan (DP) and providing strategic direction and resource allocation through effective management oversight within the department. DPB is chaired by the VCDS with representation of the Level 1's, and CFD and CProg in attendance. The DPB is responsible for providing oversight of Capability Development and management of the

[96] *Ibid*., 5-6.

Defence Programme and delivery of the Strategic Capability Investment Plan (SCIP). CDB is chaired by CFD and is responsible for assisting CFD in making decisions in managing force development through a capabilities based approach. PMB is chaired by the CProg and in a similar manner is responsible for assisting CProg in making decisions on the delivery of the Defence programme in Horizon 1 (1-4 years). PMB is the governance body within DND/CF that reviews individual projects twice as a minimum, first for project definition funding and again when seeking resources for full project approval.[97]

In order to put the overall acquisition process into perspective the VCDS has published a Project Approval Guide that describes Canada's Defence Services Program (DSP) as encompassing the departmentally approved activities expressed in resource terms. A major component of the DSP is the DND/CF Capital Program.[98] The DSP shapes the long-term sustainment of defence capability, and capital equipment is the largest component of the Capital Program that includes all equipment, material and/or service projects. The Capital Program is documented in the SCIP, which is used to process project approvals and is jointly submitted with the Departmental business plan to Treasury Board for funding.[99]

Managing the Capital Equipment program is complex and encompasses a detailed set of processes to deliver capability while controlling costs, minimizing schedule risk,

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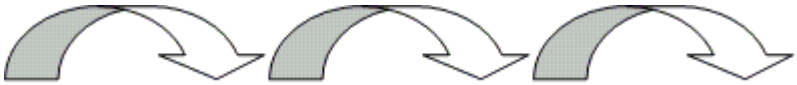
[97] *Ibid*., 8-12, A-6,A-29,A-36,A-42.

[98] There are four basic components to the capital program including Capital Equipment projects having individual values of $100M or more, or which have been specifically designated strategic by PMB as a result of significant risk or importance, Construction (new construction, recapitalization and capital lease), Miscellaneous Requirements and Other Capital.

[99] Canada, Department of National Defence, "Project Approval Guide (PAG) Chapter 1," http://www.vcds.forces.gc.ca/dgsp/pubs/pag/pag_e.asp; Internet; accessed 18 February 2008, 1-1.

and ensuring performance parameters are met. Figure 8 highlights the five phases in the life cycle of a Canadian defence capital equipment project and high level activities required to deliver the equipment necessary to redress the capability deficiency. Program decisions are made by senior management to allow a project to continue to each subsequent phase in the lifecycle. A synopsis sheet (SS) outlining information such as where it fits in the DP, costs, and schedule is used at each step to facilitate the assessment of the merit of continuing pursuing the project and gaining Ministerial or Treasury Board expenditure authority.[100]



IDENTIFICATION	OPTION ANALYSIS	DEFINITION	IMPLEMENTATION	CLOSE OUT
Identify Capability Deficiency **Capability-based Planning Validation**	**Formulate options** **Discard invalid options** **Assess benefits of remaining options** **Examine risk** **Decide which option should be pursued** **Definition Planning**	**Detailed review, risk assessment and costing of selected option** **Implementation planning**	**Implementation** **Implementation management** **Implementation monitoring, i.e. Initial/Full Operational Capability Milestones** **Procurement/Realty Strategies** **Reports on status of implementation**	**Full Operational Capability** **Operational Handover** **Project Completion Report** **Lessons Learned**

Decision SS(ID) **Decision SS(PPA)** **Decision SS(EPA)**

[100] Canada, Department of National Defence, "Project Approval Guide (PAG) Chapter 2," http://www.vcds.forces.gc.ca/dgsp/pubs/pag/pag_e.asp; Internet; accessed 18 February 2008, 2-1 thru 2-3.

Figure 8: Project Management Phases and Decision Points
Source: DND Project Approval Guide (PAG) Chapter 2

There are some projects that are categorized as Major Crown Projects (MCP) which by their size or complexity have significant elements of risk and therefore have additional oversight management requirements. The VCDS' Project Approval Guide refers to the Government's Treasury Board policy of defining an MCP as a project "with high risks, high expenditure value (usually greater than $100M), or high public (political) visibility and thus are managed to ensure all approved objectives are met."[101] The additional management oversight requirements include obtaining approval-in-principle from Cabinet for those MCPs having significant policy implications and establishing a Senior Project Advisory Committee (SPAC) representing all government departments participating in the project. Furthermore the overall project management of an MCP must have a well defined accountability framework of senior management for the project, have a clear and coordinated definition of the project's scope, and be managed with careful attention to elements of risk, complexity and economy of resources.[102]

The project approval process of an MCP is the same as for other capital projects except that there may be additional requirements inserted to comply with specific government or department direction. A Memorandum to Cabinet (MC) is one such requirement that includes two sections. The first section outlines the recommendations of the MND and articulates the preferred course of action. The second section outlines a balanced and objective analysis of the issue, the key factors influencing the possible

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[101] Canada, Department of National Defence, "Project Approval Guide (PAG) Chapter 4," http://www.vcds.forces.gc.ca/dgsp/pubs/pag/pag_e.asp; Internet; accessed 18 February 2008, 4-11.

[102] *Ibid.*, 4-11,12.

options described, the options themselves, and a cost comparison of implementing each. Developing the MC by Assistant DM Policy/ D Cabinet Liaison staff will often require close interdepartmental coordination requiring input from a number sources including the Project Director, Project Manager, level 1 advisors, Industry Canada, and Public Works Government Services Canada (PWGSC). Treasury Board Secretariat and the Privy Council Office may also provide advice when/as required.[103]

Industry Canada and PWGSC play important roles in acquiring MCPs for DND/CF. They, along with input from regional agencies, work with DND to develop a joint procurement strategy that will meet the Government's Industrial Regional Benefit (IRB) policy.[104] IRBs are typically associated with defence procurement activities over $100M (MCPs) and are discretionary below that monetary value.[105]

Canada does not have a Defence Industrial Strategy or Industrial Policy but has some directorates or programs that are aimed at contributing to the Canadian Defence Industrial Base. Within DND, the Assistant Deputy Minister Material Group (ADM Mat), the Director General International and Industry Programs (DGIIP) Division works with DND/CF personnel to

> establish contacts with other departments or foreign governments on variety of industry issues, export control concerns and resolving issues with industry and their associations. DGIIP also works closely with the defence and security industry to understand the Canadian Government and DND procurement

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[103] *Ibid.*, 4-14.

[104] IRBs fit into the government's procurement policy by supporting industrial and regional development while fulfilling its international and domestic trade obligations. The SPAC plays a role in the interdepartmental review of the procurement strategy.

[105] Canada, Industry Canada, "Canadian Aerospace and Defence Industry - IRB Policy Guidelines," http://www.ic.gc.ca/epic/site/ad-ad.nsf/en/ad03663e.html; Internet; accessed 13 April 2008.

processes, access foreign markets, and assist in the resolution of issues with DND.[106]

In addition, the Defence Research and Development Canada (DRDC) organization manages a Defence Industrial Research Program (DIR Program) sponsored by DND with the aim of strengthening the Canadian Defence Industrial Base. The DIR Program provides financial and scientific support for industry initiated research projects that will benefit the defence of Canada or its Allies through stimulation of research and innovation to foster advancement of technologies to meet Canadian, NATO and allied future requirements.[107]

The Director General Major Projects Division (DGMPD) within Assistant DM Material Group is a recent organizational change in 2007 as a result of a significant increase in the number of MCPs as a result of government recapitalization of the CF. The consolidation of the management of these complex MCPs under one division is intended to leverage critical existing expertise into a centralized location. DGMPD's Major Project Services Directorate will provide common services such as project management, procurement, financial, administrative, and human resource management to

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[106] Canada, Department of National Defence, "Director General International and Industry Programs," http://www.forces.gc.ca/admmat/dgiip/index_e.asp; Internet; accessed 13 April 2008.

[107] Canada, Department of National Defence, "Defence Industrial Research Program - Doing Business with Us - Defence Research and Development Canada," http://www.drdc-rddc.gc.ca/business/dirp/dirp_e.asp; Internet; accessed 5 April 2008.

all its assigned MCPs. It will also "enhance project management training and formalize a certification program for ADM (Mat) project management professionals." [108]

There is no formal IPT structure as part of Canada's acquisition process. Once a project has been initiated, matrix management approach is used to support the ECS' Project Director progress the project through the acquisition approval process. In order to obtain the necessary specialist/functional inputs, the Project Director must negotiate with the functional managers. Once a project has been initiated, a Project Manager is assigned from ADM (Mat) to assist the Project Director during the sponsor (ECS) leadership period. The supporting relationship between the PD and PM will switch when the project transitions to the implementer (ADM (Mat)) leadership period.[109] Matrix management is beneficial in making efficient use of functional specialists in particular for projects that do not require dedicated functional staff and also allows reach back to parental functional organizations where required. Matrix management is less desirable because of the complex organizational structure and project team members have two bosses.[110]

In summary, as previously noted, Canada has been plagued with significant delays in progressing projects through the acquisition process. A recent change to the internal DND governance structure and the establishment of the CFD and CProg

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[108] Canada, Department of National Defence, "Materiel Group Organizations," http://www.forces.gc.ca/admmat/site/organization_e.asp#dgmpd; Internet; accessed 13 April 2008.

[109] The matrix organization structures allows the Functional Authority to specify procedures and quality standards for functional tasks. Typical Functional Authorities involved in a capital equipment project include finance, personnel, procurement, initial provisioning, quality assurance, engineering, training etc.

[110] Canada, Department of National Defence, ADM (Mat), "Project Management Principles and Policies for DND", available on the Defence Information Network. Department of National Defence, Ottawa, Canada, 2008.

organizations are the only organizational reform initiatives to bring some focus to overall management of the Defence Plan. There are no enabling policies, strategies, or training of requirements generators to streamline the front end of the acquisition process or support a comprehensive IPT management approach.

Finally, the last part of this paper will continue with a comparison of the acquisition processes of the UK, US, Australia with Canada to support the adoption of the IPT management approach.

A Comparison of Acquisition Systems

General

The UK, US, Australia and Canada Defence departments have all undergone major reform initiatives in the last ten years, some more so than others, in an attempt to acquire equipment needed to address defence capability gaps. These have been focused on simplifying and streamlining the major capital acquisition process in their respective countries. In reviewing the current state of the UK, the US, Australia and Canada there were four main change initiatives that were improved upon to optimize the acquisition of major capital equipment. Those initiatives included the reform of acquisition organizations, the government and defence articulation of policy and strategy, the training/standardization to develop competencies in their acquisition personnel the entrenchment of these enablers supporting integrated project teams as a core project management framework.

Organizational Reform

Organizational alignment of personnel in acquisition was one of many reform initiatives to improve the respective acquisition processes evident in the UK, the US and Australia. These major transformational organizational changes were designed to realize time savings and support a focused organization dedicated to acquisition. This includes requirements generators to define capability gaps, project managers, procurement specialists, industry and engineering support staffs all working together under one organization responsible and accountable for delivering the required defence capability.

In Canada the defence organizational relationship is built around matrix design where requirements generators and program managers are separated organizationally within the DND. PWGSC, Industry Canada and the Treasury are also separated in other Government Departments. This contributes to blurred lines of overall accountability and precludes comprehensive unity of purpose that would exist under one organization. A review by the Chief of Review Services (CRS) of the Capital Acquisition Process reported that "there was a duplication of effort between PWGSC and ADM Mat with regards to contracting."[111] In addition, the Advisory Committee to the MND on Administrative Efficiency highlighted that this interdepartmental organizational structure was flawed. The committee stated that such a relationship

> weakens accountability and creates inefficiency by requiring the two departments to work on the acquisition of the same goods and services… Therefore, accountability, responsibility, and authority for that activity should, more logically, be assigned to a single agency.[112]

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[111] Canada, Department of National Defence, "Chief Review Services: Perspectives on the Capital Equipment Acquisition Process," http://www.dnd.ca/crs/rpt/capaq_e.htm; Internet; accessed 15 February 2008, 13.

[112] Canada, Advisory Committee on Administrative Efficiency, "DND/CF: Achieving Administrative Efficiency," http://www.dnd.ca/site/Focus/AE/indexAE_e.htm; Internet; accessed 2 March 2008, 31.

While the Committee focused on consolidating the procurement activity under a single agency for defence related equipment acquisition, the other government departments still have their role to play in the overall acquisition process. Due to that fact alone, it is difficult to ascertain if any new time savings in the overall acquisition process would be realized. The failure of organizational reform in the UK under Smart Acquisition and subsequent DACP revitalization to course correct the acquisition reform initiative should serve as a caution regarding any potential organizational changes.

The Auditor General of Canada reinforced that caution. Citing her department's observations of reorganization in government,

> it can take a lot of time and energy from senior management away from… the business of the day to establish and create new organizations, there would have to be good reasons to do that, because it will demand a lot of time and effort by senior people. When these big shifts occur, it can be very destabilizing within government departments. It is something that would appear to be as crucial as getting procurement done more quickly. You almost have to wonder if that is going to help or if that is going to impede that process.[113]

ADM Mat has reorganized within the group to create the DGMPD which consists of 2 Divisions, DGMPD Air and DGMPD Land & Sea (L&S). These two new organizations were developed to focus attention on the CF's highest priority MCPs and to strengthen the project management cadre expertise through more effective use of project management resources.[114]

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[113] Canada, Standing Committee on National Defence, "Committee Meeting Number 40, 1St Session, 39Th Parliament, 1 March 2007," http://cmte.parl.gc.ca/cmte/CommitteeList.aspx?Lang=1&PARLSES=391&JNT=0&SELID=e22_.2&COM=10470&STAC=1858355&AffiliationId=13208; Internet; accessed 21 February 2008, 1020 hrs.

[114] Canada, Department of National Defence, "Materiel Group Organizations," http://www.forces.gc.ca/admmat/site/organization_e.asp; Internet; accessed 19 April 2008.

Accepting that the internal and interdepartmental organizational landscape in Canada's procurement process is complex it would not seem prudent at this time of major injection of capital investment to undertake any major reorganization initiatives that would divert the attention from moving projects through the acquisition process. The critical interaction of current organizations, both inside and outside of DND, will require close collaboration to get projects through the acquisition process in a timely manner. Reorganization initiatives represent significant risk based on allied experience of major organizational reform; however, elimination of potential areas of duplication between ADM Mat and PWGSC should be further investigated.

Policy

The pre-eminence of government policy and strategies, particularly as they relate to defence policy, industrial policy, and defence industrial policy to serve the strategic objectives of the nation is abundantly evident in the UK, the US and Australia. The importance of these documents is that they establish mandatory policy and provide a framework outlining the expectations of government and providing general direction where government's investment plans are for the future. More importantly, assuming they are reviewed and/or adjusted on a regular cycle, they serve to give relevancy and avoid drastic changes in policy direction that might otherwise occur if there were no policies clearly articulated. Two of the policies that directly affect defence acquisition in the UK, US and Australia are the industrial policy and defence industrial policy. The importance of these policy documents varies among the countries described in this paper.

Both the US and UK have created these policy documents to ensure access to their defence manufacturing base in times of conflict. Whereas Australia's policy framework, a country without a defence manufacturing base, outlines the intentions of government by giving the defence industry an indication of future defence equipment investment needs. This permits industry to develop its capacity to support future programs and be in a position to engage in industrial partnerships outside Australia to support the ADF in meeting its future defence commitments.

Canada's IRB policy and R&D investment programs are the two independent policies managed by different departments that are not integrated very well into Canada's acquisition strategy of MCPs. Dr. Craig Stone has argued that Canada Needs a Defence Industrial Policy, highlighting that the IRB policy of Canada today is a project by project venture. Alternatively, if Canada had a Defence Industrial Policy, IRBs could be "viewed in a more holistic and strategic manner."[115]

In a broader sense this would give Industry an opportunity to make longer lasting industrial investment in Canada such as a North American supply chain in an unrelated industrial offshoot versus a spin-off lasting only the length of a Canadian contract. Another important aspect as it relates to acquisition is found in the UK Defence Industrial policy and Australian Defence and Industry Policy Statement. It has facilitated a more open and transparent dialogue between Defence and Industry, permitting industry involvement very early on in the acquisition process, and in particular established a framework to make industry a participant in IPTs of MCPs.

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[115] James Stone, "Canada Needs a Defence Industrial Policy" Paper presented at the annual meeting of the ISA's 49th Annual Convention, Bridging Multiple Divides, Mar 26, 2008 Online <PDF>. http://www.allacademic.com/meta/p_mla_apa_research_citation/2/5/3/6/8/p253688_index.html; Internet; accessed 4 April 2008.

In the absence of a defence industrial policy in Canada, facilitating early involvement of industry through a more formal interface such as a secondment from industry to DGIIP within ADM Mat group or Defence R&D who then could complement the IPT membership as part of the internal DND matrix organization should be further investigated. Being able to reduce time spent in each approval phase because of a lack of expertise or knowledge to define capability gaps and/or develop options could be addressed by seconding the right representation from industry to contribute to reduced timings in the work leading up to SS(ID), SS(PPA) and SS(EPA).

Acquisition Training

There is no standardized acquisition training for the requirements staff acting on behalf of the Environmental Chiefs of Staff, as project sponsors are responsible for leading a project through the initial approval stages of a project. As noted earlier ADM Mat has established a centre of project management excellence to more effectively manage MCPs. DGMPD, in addition to managing the CF highest priority MCPs is also

> mandated to develop project management qualification standards, build upon best practices, enhance project management training and formalize a certification program for project management professionals.[116]

The transition of custodial responsibility for the project is transferred from the project sponsor once the project enters the implementation phase.[117] Extending and standardizing this type of training tailored to the initial stages of the acquisition process (before SS(ID) to SS(EPA)) could contribute to additional efficiencies and time savings

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[116] Canada, Department of National Defence, "Materiel Group Organizations," http://www.forces.gc.ca/admmat/site/organization_e.asp; Internet; accessed 19 April 2008.

[117] Canada, Department of National Defence, "Project Approval Guide (PAG)," http://www.vcds.forces.gc.ca/dgsp/pubs/pag/pag_e.asp; Internet; accessed 18 February 2008, 1-8.

in the early stages of a project and facilitate a smooth transition of project leadership responsibilities to ADM Mat project management staff.

It can be seen that a structured organizational framework, clear enunciated policies supporting acquisition, and professionalization of acquisition personnel are key enablers of a comprehensive IPT management approach that could streamlining Canada's acquisition process.

Integrated Project Teams

The UK, the US and Australia have adopted an IPT management approach as a means to establish a close collaboration between all stakeholders throughout the lifecycle of a project. The main advantage of IPTs in the UK, the US and Australian models are that Industry is a participant early on in the acquisition process. IPTs are further enabled by those countries that have a clearly articulated defence industrial policy and clear set of guidelines and safeguard mechanisms to ensure industry participation does not compromise open competition in the bid assessment and contract award phases of a project.[118] The benefits, industry can provide include "expertise on costing and scheduling, technology, transition from functional to technical specifications and production capacity."[119] Table 1 summarizes potential benefits of incorporating the IPT management approach at the outset of a new project in Canada.

Table 1 – IPT Involvement at the outset of Acquisition Process

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[118] B.A. Kausal, *et al*, "A Comparison of Defense Acquisition Systems of France, Great Britain and the United States (2000)." http://www.dau.mil/pubs/misc/acq-comp-euro00.asp; Internet; accessed 4 April 2008, 3-39.

[119] B.A. Kausal, Stephan Markowski, "A Comparison of Defense Acquisition Systems of Australia, Japan, South Korea, Singapore and the United States (2000)," http://www.dau.mil/pubs/misc/acq-comp-pac00.asp; Internet; accessed 4 April 2008, 1-67.

Canadian Acquisition Milestone	Benefit (+,0,-)	Remarks
SS (ID)	+	Earlier industry involvement to realize early feasibility of technical solutions, production schedule, and initial cost estimates for options development.
	+	Greatest potential to identify major risk areas before major commitment of time, personnel and $.
	+	Early improvement in quality and scope of options development to redress capability gap.
	+	Increased mutual (Defence & Industry) understanding and expertise developed.
	+	Fosters early development of trust relationships and open communication.
SS (PPA)	+	Possible time saving to reach this milestone from initial work achieved from previous phase.
	+	Depending on nature of options available, opportunity to bypass direct to SS(EPA) that translate into potential time and cost savings.
SS (EPA)	+	Continuity in team and procurement strategies refined from previous work to mitigate any schedule, financial and performance risks
Contract Award	+	Open communications and trust relationships established earlier should assist in addressing problems at the lowest level possible
	0	IPT Transition to ADM (Mat) - no Change from existing approach
Initial Delivery	0	Open communications and trust relationships established earlier should assist in addressing problems at the lowest level possible
	+	IPT Transition to ADM (Mat) - no Change from existing approach
Final Delivery	0	IPT Transition to ADM (Mat) - no Change from existing approach
Close Out	0	IPT Transition to ADM (Mat) - no Change from existing approach

The IPT management approach fosters the early development of trust and open communications within a team construct, which in turn fosters more effective management in achieving the aim through each phase of project approval and introduction into service: to deliver a performance capability, on time and on budget. The IPTs of the UK, the US and Australia are an extension of their singular acquisition organization with a single coordinated focus on a project. Canada's lacks a comprehensive IPT management framework. Project teams may be formed from personnel within the matrix organization and then only later on in the process, some crossing organizational and departmental lines. Industry interaction occurs only leading up to contract award but is not as participative with government as in the integrated sense of IPT structures of the UK, US and Australia. If DND were to incorporate the secondment recommendation of industry as outlined above, this would potentially further

optimize the options being pursued early on in the process assisting project sponsors in developing and/or analyzing potential solutions to capability deficiencies.

Conclusion

The aim of this paper was to demonstrate that DND/CF should adopt a comprehensive Integrated Project Team (IPT) management approach at the outset of new projects in order to increase the efficiency of the acquisition process. An examination of acquisition systems of the UK, the US and Australia highlighted best practices that uncovered some major differences in their respective acquisition process when compared to Canada. The major differences are revealed in the way their acquisition organizations are structured and governed, the importance of government policies that shape the implementation of acquisition processes within government particularly as it relates to industry involvement in acquisition process, and necessity of professionalization of their acquisition workforce through training and standardization. The adoption of a comprehensive IPT management approach was a fundamental practice in the success of the acquisition processes of each country examined.

Analysis of the common acquisition process attributes indicates that there are potential areas of improvement that Canada could also adopt to realize some potential efficiency. No immediate efficiency is foreseen in bringing only some elements, such as the procurement authority of the acquisition process, under the responsibility of DND since the remaining interdepartmental interfaces with Industry Canada and the central staffs to gain project approvals would remain. Existing approval mechanisms would still be required as part of the mandated checks and balances required by government.

However, elimination of potential areas of duplication in procurement authorities between ADM Mat and PWGSC is worthy of further investigation.

To date, DND has been innovative in a limited way in streamlining some of its acquisition activities by permitting greater industry involvement in commenting on critical project documentation in the lead up to contract award milestone. The lack of a more comprehensive defence industrial policy that would allow industry participation at the outset of the acquisition process prevents the leveraging of industry expertise. This policy deficiency negates additional potential benefits to DND in time saving efficiencies at the outset of the acquisition process, specifically during definition of capability gaps and development of options to redress those gaps. Further research to recommend to Government that a defence industrial policy to facilitate industry involvement at the outset of new projects in the acquisition process should be actively pursued. Such research could also integrate how IRBs could be managed into a more holistic approach taking into account Canada's Defence Capability Plan (10 yrs +) and establishing long-term industrial development strategy in a Canadian defence industrial base. Concurrent with the aforementioned recommendation for a more comprehensive defence industrial policy, DND should also build on existing relationships that permit industry involvement with Defence R&D or DGIIP to exploit the potential benefits of industry participation at the outset of each new project.

ADM Mat has reorganized under the CF transformation umbrella to establish a centre of excellence for project management, including the training and standardization of qualifications necessary for ADM Mat personnel involved in the acquisition process for the implementation phase in the acquisition process. It is recommended that the

Environmental Chiefs of Staff, as the executive level leadership responsible for the requirements generators, should implement a common project management training and standardization initiative to more effectively manage respective projects for the assigned responsibility through to SS(EPA). The importance of having personnel with the right training to manage capital projects is essential. Learning as one goes through the acquisition process risks breeding inefficiencies into an already complex process that could potentially delay the progress of a required capability. Investment in training for requirements generator personnel should be acted upon as soon as possible to enable the potential project management improvements to Canada's acquisition process.

The Integrated Project Team management approach is the fundamental best practice that is a cornerstone management tool rooted in the acquisition process of UK, US and Australia. In Canada, too much time and effort is spent moving projects through to contract award. The key to moving the right projects through the process is having clear priorities and a governance structure within DND/CF that can monitor the progress and make decisions on a project as it passes through the required approvals. Critical to the success that the UK, US, and Australia are experiencing in their acquisition processes, is founded on their adoption of an IPT management approach at the beginning of their respective acquisition reform initiatives. Canada too could benefit from adopting an Integrated Project Team management approach at the outset of new projects to streamline its acquisition process and realize efficiencies in project cost, schedule, and technical performance to deliver defence capability.

Appendix 1 – Glossary of Terms

ADF	Australian Defence Force
ADM Mat	Assistant Deputy Minister Material
AOF	Acquisition Operating Framework
APM	Association for Project Management
BoK	Body of Knowledge
CBA	Capabilities Based Assessment
CDAF	Capability Development Advisory Forum
CDB	Capability Development Board
CDB	Capability Development Board
CDD	Capabilities Development Document
CDG	Capability Defence Group
CDIA	Canadian Defence Industries Association
CDS	Chief of Defence Staff
CFD	Chief of Force Development
CMGs	Capability Management Groups
CPD	Capability Production Document
CPGs	Capability Planning Groups
CProg	Chief of Programme
CRS	Chief of Review Services
DACP	Defence Acquisition Change Programme
DCDM	Defence Capability Development Manual
DCP	Defence Capability Plan
DE&S	Defence Equipment & Support
DEC	Directors of Equipment Capability
DGIIP	Director General International and Industry Programs
DGMPD	Director General Major Projects Division
DGMPD (L&S)	DGMPD Land & Sea
DIR Program	Defence Industrial Research Program
DIS	Defence Industrial Strategy
DLoD	Defence Lines of Development
DM	Deputy Minister
DMC	Defence Management Committee
DMO	Defence Management Organization
DND	Department of National Defence
DOD	Department of Defense
DP	Defence Plan
DPB	Defence Planning Board
DPB	Defence Planning Board
DRDC	Defence Research and Development Canada
DSP	Defence Services Program
EAC	Enabling Acquisition Change
ECC	Equipment Capability Customer
ECS	Environmental Chiefs of Staff

Appendix 1 – Glossary of Terms (cont'd)

IIPT	Integrating Integrated Project Team
IPT	Integrated Project Team
IRB	Industrial Regional Benefit
IRBs	Industrial Regional Benefits
JCB	Joint Capability Board
JCIDS	Joint Capabilities Integration and Development System
JROC	Joint Requirements Oversight Committee
MC	Memorandum to Cabinet
MCE	Major Capital Equipment
MCP	Major Crown Project
MDA	Milestone Decision Authority
MND	Minister of National Defence
MoD	Ministry of Defence
NATO	North Atlantic Treaty Organization
OIPT	Overarching Integrated Project Team
PMB	Programme Management Board
PPBE	Planning, Programming, Budgeting, and Execution
PWGSC	Public Works and Government Services Canada
R&D	Research and Development
SCIP	Strategic Capability Investment Plan
SCONDVA	Standing Committee on National Defence and Veterans Affairs
SIT	Science Innovation Technology
SPAC	Senior Project Advisory Committee
SPFH	Strategy Planning Framework Handbook
SS	Synopsis Sheet
TLMP	Through Life Management Plan
UK	United Kingdom
US	United States
VCDS	Vice-Chief of Defence Staff
WIPT	Working Integrated Project Team

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