CANADIAN FORCES COLLEGE COLLÈGE DES FORCES CANADIENNES

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# TRUST IS NOT A FOUR-LETTER WORD

# BETTER CAPABILITY DELIVERY THROUGH PROJECT ALLIANCING

By/par

Captain (N) Donald F. Smith

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## ABSTRACT

The *Canada First Defence Strategy* is *de facto* a contract between the Government of Canada and the Department of National Defence that provides both strategic guidance for the Canadian Forces and the supporting major equipment procurements. The Government has clearly articulated the extent of its "ambitions" in terms of capability, supporting systems and costs. Notwithstanding that the *Canada First Defence Strategy* will need to adapt to reflect the evolving domestic and global environment, the articulation of the government's limits on appetite is a critical strategic planning requirement for the Canadian Forces and the Department of National Defence. Amongst the acquisitions required is a group of highly complex, high-risk procurements that must be delivered within limited funding and demanding schedules. The recent challenges in re-equipping the Canadian Forces are indicative of the risk of procurement failure and subsequent impacts on cost, schedule, and, quite likely, performance. This paper builds upon the weaknesses of the traditional contracting methodology of maximizing risk transfer to industry and adversarial dispute resolution. These weaknesses can result in a high probability of outright failure or of slipped schedules, cost overruns, or sacrificed capability. It is argued that project alliancing, an advanced form of relationship contracting that builds upon risk mitigation through sharing risks and contracting for behaviour, is a methodology that Canadians can exploit to minimize the risk to delivering the highly complex procurements that form the cornerstone of the *Canada First Defence Strategy*.

*If a country wants to be taken seriously in the world, it must have the capacity to act. It's that simple. Otherwise, you forfeit your right to be a player.*

*Prime Minister Stephen Harper*[1]

## INTRODUCTION

Canada is undergoing a significant period of rebuilding its defence capabilities. The dominant and consistent theme throughout the previous government's defence statement, *Canada's International Policy Statement: A Role of Pride and Influence in the World: Defence*, and the current government's *Canada First Defence Strategy* is the need to both defend Canada and project Canada's influence in the Americas and further abroad.[2] Also recognized is the imperative to recapitalize Canada's defence capability, particularly in terms of personnel and equipment. Recognizing that significant cuts were made to defence budgets in the 1990s as part of overall government budget reductions and a desire to collect on a post-Cold War peace dividend, recent governments have responded to the changing international security environment by putting a renewed emphasis on defence capability.

In that vein, the *Canada First Defence Strategy* is *de facto* a contract between the government of Canada and the Department of National Defence (DND) that provides, *inter alia*, the strategic guidance for the Canadian Forces (CF) capability priorities and

[1]Office of the Prime Minister of Canada, "PM Unveils Canada First Defence Strategy," http://pm.gc.ca/eng/media.asp?id=2098; Internet; accessed 12 February 2009.

[2]Department of National Defence, *Canada's International Policy Statement: A Role of Pride and Influence in the World: Defence*, Ottawa: Department of National Defence, 2005: 1-32 and Department of National Defence, "*Canada First Defence Strategy*," available from http://www.forces.gc.ca/site/focus/first/June18_0910_CFDS_english_low-res.pdf; Internet; accessed 19 December 2008, 7-9.

the supporting major equipment procurements.[3] The government has clearly articulated the extent of its "level of ambition" in terms of capabilities, supporting systems and costs.[4] Notwithstanding that the *Canada First Defence Strategy* (CFDS) will need to adapt to reflect the evolving domestic and global environment, the articulation of the government's limits on appetite are a critical strategic planning requirement for the Canadian Forces and the Department of National Defence.[5] Prior to the CFDS' release, the government had approved the procurement of four C-17 Globemasters (a programme that has delivered on schedule) and three Joint Support Ships (a programme that suffered a procurement failure and is being re-examined.) The *Canada First Defence Strategy* outlines other near-term major procurements of 17 C-130J Hercules aircraft, 16 CH-47F Chinook helicopters, 2300 military trucks, up to 100 Leopard tanks, and six to eight Arctic/Offshore patrol ships. The CFDS further commits to replacing the following equipment fleets: 15 ships to replace the IROQUOIS Class destroyers and HALIFAX Class frigates; 10 to 12 maritime patrol aircraft to replace the current Auroras; 17 fixed-wing search and rescue aircraft; 65 next-generation fighter aircraft to replace the CF-18s; and fleet of land combat vehicles and systems.[6]

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[3]Public Works and Government Services Canada, "Supply Manual," http://www.tpsgc-pwgsc.gc.ca/app-acq/ga-sm/chapitre12-chapter12-eng.html; Internet; accessed 5 December 2008, Chapter 12. For the purposes of this paper the PWGSC Supply Manual definition of "procurement" will be used. Procurement is defined as, "the process of obtaining materiel and services which includes the determination of requirements and acquisition from a supply system or by purchase from the trade."

[4]Department of National Defence, "*Canada First Defence Strategy*," …, 2.

[5]The conventions in this paper will to be to use "Department" as meaning the Department of National Defence; "CF" as meaning the Canadian Forces; and "Defence" as the combination as a whole of the Department and the CF.

[6]Department of National Defence, "*Canada First Defence Strategy*," …,4.

Significantly, the level of ambition defined will also come with an investment plan. This plan will define the remaining required investments, in terms of assets and associated resources, to support the objectives of the CFDS.[7]

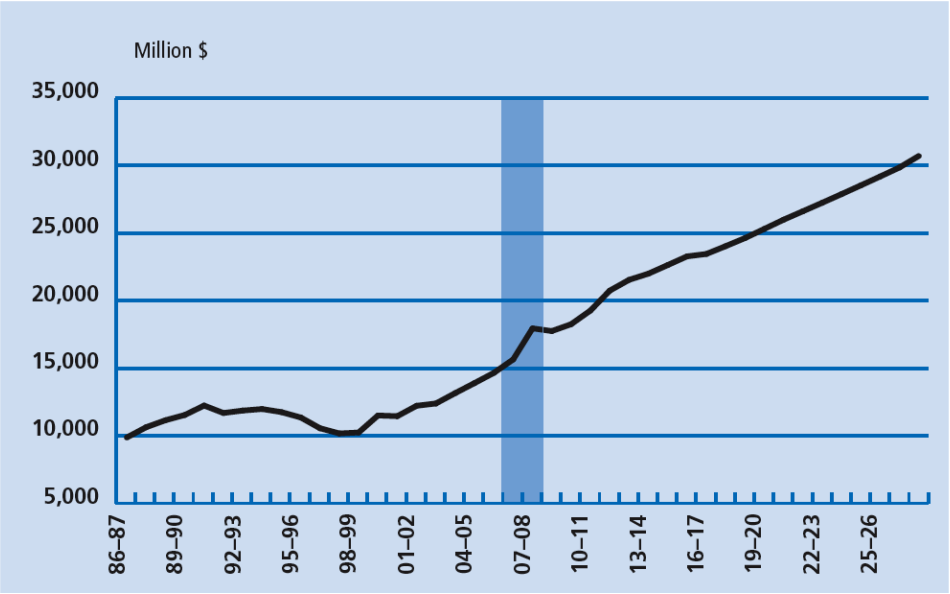


Figure 1 – Defence Program (Accrual Numbers)
FYs 1986-1987 to 2027-2028

Source: Department of National Defence, "Canada First Defence Strategy,"…, 11.

Figure 1 indicates the Defence Budget committed to by the government in the CFDS.[8] Notably, a total of 12% of this budget is allocated to equipment procurement. This allocation is for all future equipment procurements. It includes 3% or $15B[9] for the C-17, C-130J, CH-47F, Joint Support Ship, Arctic/Offshore Patrol Ships and truck projects; 4% or $20B for the fleet replacements of fixed-wing search and rescue aircraft, destroyers, frigates, maritime patrol aircraft, next-generation fighter aircraft and land

[7]Treasury Board, "Policy on Investment Planning – Assets and Acquired Services," available from http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?section=text&id=12037; Internet; accessed 12 February 2009.

[8]Department of National Defence, "*Canada First Defence Strategy*,"…, 11.

[9]Department of National Defence, "*Canada First Defence Strategy*,"…, 12. The budget numbers are "Accrual Numbers" in order reflect the ongoing change to accrual budgeting for the capital procurement elements of the overall defence budget.

combat vehicles and systems; and 5% or $25B for the remaining equipments and systems required to execute the Defence missions.

These elements of required capability, available funding, and implied delivery timing through the investment plan can be interpreted as the core cost, schedule, and performance criteria of a contract translated to the umbrella programme level. As the Minister of National Defence, Peter MacKay, stated in the preamble to the CFDS, "[The CFDS] fulfills the Government's commitment to provide enhanced security for Canadians and gives the military the long-term support it so critically needs and deserves, now and in the future."[10] Indeed, the CFDS forms a contract between the government and Defence. However, it is in the details of what forms this strategy that the challenges and risks incumbent in this opportunity become clearer.

Defence acquisition as a whole is inherently a complex endeavour that can have the attributes of a classic wicked problem.[11] It is characterized by competing requirements on cost, schedule, and performance; a changing economic and security environment and evolving standards of oversight. All of this must be executed in an environment of multiple agents within government, industry, and the public. There are a number of government departments involved each having potentially discordant policies to enforce.[12] There are many companies involved with each procurement, companies that may be part of the Canadian defence industrial base or the broader national or

[10]Department of National Defence, "*Canada First Defence Strategy*,"…, 2.

[11]A "wicked problem" is a concept used in social planning to describe a problem that is difficult or impossible to solve because of incomplete, contradictory, and changing requirements that are often difficult to recognize. Moreover, because of complex interdependencies, the effort to solve one aspect of a wicked problem may reveal or create other problems.

[12]Alan S. Williams, *Reinventing Canadian Defence Procurement: A View from the Inside*, Montreal : Published for Breakout Educational Network in association with School of Policy Studies, Queen's University and McGill-Queen's University Press, 2006. Chapter 7 and annexes A, F and I provide a detailed summary of the different government and industries involved in defence procurement in Canada.

international economies. Finally, it is the Canadian public's needs that must be serviced by defence procurement.[13] This level of complexity must be accounted for in both planning and executing individual procurements where the impacts can be immediate as well as in planning and overseeing the investment plan wherein single projects can affect the overall affordability and hence viability of this plan.

Much has been written about the need to streamline the government's procurement process.[14] In response to the need to reduce the average time to procure major equipment of 14 to 16 years,[15] a number of proposals have been made. Alan Williams, a retired Assistant Deputy Minister (Materiel) in the Department of National Defence, has proposed a reorganization of the procurement agencies supporting DND into a Defence Procurement Agency.[16] Contrastingly, another retired Associate Deputy Minister (Materiel), Pierre Lagueux has opined that the current organization is satisfactory but that government agencies must perform better within the existing

[13]Jason Clemens, Charles Lammam, Milagros Palacios, and Niels Veldhuis, *Government Failure in Canada, 2007 Report- A Review of the Auditor General's Reports, 1992–2006*, Vancouver: The Fraser Institute, October 2007, 10-13. Clemens et al provide an overview of what they refer to as the political market place which includes politicians, voters, bureaucrats and special interest groups.

[14]House of Commons, Standing Committee on National Defence, *Report on Procurement and Associated Processes*, February 2008; available from http://www2.parl.gc.ca/HousePublications/Publication.aspx?DocId=3240298&Language=E&Mode=1&Parl=39&Ses=2; Internet, accessed 21 March 2009, 1-15. This report provides a recent overview of both the successes and remaining challenges regarding defence procurement as well as providing a compendium of potential process improvements.

[15]Alan S. Williams, *Reinventing Canadian Defence Procurement: A View from the Inside,…*, 95.

[16]Alan S. Williams, *Reinventing Canadian Defence Procurement: A View from the Inside,…*, 5. Mr Williams proposes the creation of a defence procurement agency, Defence Procurement Canada, which would report to the Minister of National Defence and would combine elements of Public Works and Government Services Canada with the procurement elements of the Department of Defence's Material Group. The synergies gained are argued to be significant and give potential to reduce the government's inefficiencies in contracting. Mr Williams also recognizes many challenges between government and industry that this organizational change would not fully resolve on its own.

framework.[17] While these proposals merit serious consideration, they do not fully address one of the key challenges of Defence procurement – the risks associated with getting into a contract and effectively and efficiently executing that contract.

Recognizing these concerns, the government has also signalled that it desires a significantly revitalized engagement with Canadian industry. The goals of this renewed engagement are continued efforts to improve procurement methods, fostering greater transparency, and engaging industry earlier in the procurement process. These goals are aimed at continuing to have an open and fair procurement process that is more streamlined.[18] This government-industry engagement is about fostering a better relationship, which will reduce the risks of procurement while ensuring mutual benefit for government and industry.

At the heart of the concerns driving the need to engage industry more fulsomely is the issue of risk and its mitigation. The success of the *Canada First Defence Strategy* will depend upon the delivery of a group of highly complex and high-risk equipment projects in a timely manner within the limited funds available. Importantly, challenges and short-term failures have already been experienced with key defence projects. Although there have been few details released, the Maritime Helicopter Project has

[17]House of Commons, Standing Committee on National Defence, *Report on Procurement and Associated Processes*,…, 5. Mr Lagueux cautions against major restructuring and focuses on the need to improve how government deals with industry and argues that this can be done within the current organisational construct. Key elements of his recommendations are early engagement of industry, risk minimization vice simply risk identification, using incentives more freely than penalties and openness in the decision making process.

[18]Department of National Defence, "*Canada First Defence Strategy*,"…, 20.

undergone significant schedule slips and cost increases.[19] Further, the Joint Support Ship project has recently experienced a failed Request for Proposal (RFP) due to the inability of government and industry to meet the project requirements within available funding.[20] The causes of these challenges are many but core reasons are the relationship between the government and industry (particularly the level of mutual trust) and the nature in which the government attempts to transfer risk to industry. These challenges have manifested themselves in many government failures to fully meet the desired procurement objectives that include prolonged periods of time to enter into a contract, failure to meet requirements, cost overruns, and inability to provide all of the information necessary to ensure regulatory guidelines and policies have been followed.[21]

Canada is not alone in facing this type of procurement challenge. Its allies and competitors alike all face similar situations. Further, governments are not alone in needing to deal with high-risk procurements. The construction and oil exploration industries are also routinely challenged by risk and uncertainty where "business as usual"

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[19]John Ward, "Re-equipping military with helicopters getting costlier," *The Canadian Press*, April, 30, 2008; http://search.ebscohost.com/login.aspx?direct=true&db=n5h&AN=MYO151597563208&site=ehost-live; Internet; accessed 12 February 2009. In this article the Minister of National Defence is quoted as saying, ""We are going to continue to have very explicit and specific discussions with Sikorsky to find out whether they can live up to their contractual obligations." Further indications of a delay of delivery from end-2008 to sometime in 2010 have been reported. Refer to "Sikorsky Flies Canada's First Cyclone," *Aviation Week & Space Technology* 169, no. 20 (November 24, 2008): 17; http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=35699926&site=ehost-live; Internet; accessed 12 February 2009.

[20]Sharon Hobson, "Canada Cancels Support Ship Procurement," *Jane's Defence Weekly* 45, no. 37 (September 10, 2008): 10; http://search.ebscohost.com/login.aspx?direct=true&db=tsh&AN=34398960&site=ehost-live; Internet; accessed 12 February 2009. Public Works and Government Services Canada, "Supply Manual,"…, Chapter 12 defines a Request for Proposal as the mechanism for competitive bids which, "while generally used for requirements of $25,000 or more, is often employed for requirements where the selection of a supplier cannot be made solely on the basis of the lowest price. AN RFP is used to procure the most cost-effective solution based upon evaluation criteria identified in the RFP."

[21]Jason Clemens, Charles Lammam, Milagros Palacios, and Niels Veldhuis, *Government Failure in Canada, 2007 Report- A Review of the Auditor General's Reports, 1992–2006*, …, 1-2.

approaches are not satisfactory.[22] There are significant efforts being taken in many nations to address the issues related to risk and procurement. Particularly interesting are the efforts in Australia to build upon the internationally accepted concept of project alliancing to deliver upon highly complex engineering, public works, and defence projects.[23] Project alliancing is in essence a means of contracting for behaviour based upon trust and sharing risk between all parties by sharing both the pain and the gain, that is to say costs and benefits, in an equitable manner to ensure project success.[24] This approach has also been used in the United Kingdom.[25]

With the government facing both opportunities and challenges in re-equipping the Canadian Forces, a means of enhancing the relationship between industry and the government will be examined in order to maximize the benefits to both Defence and industry. In particular, the fundamental strategies of entering into and executing contracts for highly complex, high-risk procurements and the methods of mitigating the risk of procurement failure and subsequent impacts on cost, schedule, and quite possibly performance will be examined. In order to do so, this paper builds upon the need to overcome the weaknesses of the traditional contracting methodologies when applied to

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[22]Chris Noble, "Can project alliancing agreements change the way we build?" *Architectural Record* 195, no. 7 (July 2007): 65-66; http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=25900758&site=ehost-live; Internet; accessed 12 February 2009.

[23]State of Victoria, Australia, "Project Alliancing Practitioner's Guide," available from http://www.dtf.vic.gov.au/CA25713E0002EF43/WebObj/CompleteProjectAllianceGuide/$File/Complete%20Project%20Alliance%20Guide.pdf; Internet; accessed 13 February 2009, Appendix 1. This guide provides a summary of the development of project alliancing for engineering and public works projects.

[24]Jim Ross, "Introduction to Project Alliancing (April 2003 Update at the Alliance Contracting Conference Sydney)," www.pci-aus.com; Internet; accessed 10 October 2008, 1.

[25]United Kingdom, Office of Government Commerce, "The Integrated Project Team - Teamworking and Partnering," available from http://www.ogc.gov.uk/documents/CP0065AEGuide5.pdf; Internet; accessed 13 February 2009, 7.

highly complex, high-risk projects. Building upon this, ways to address the high probability of outright failure or of slipped schedules, cost overruns, or sacrificed capability will be analyzed. It will be argued that project alliancing that builds upon shared risked and contracting for behaviour is a contracting methodology that Canada can exploit to minimize the risks associated with the delivery of the highly complex, high-risk procurements that form the cornerstone of the *Canada First Defence Strategy*.

The analysis will provide a discussion of the salient features of defence procurement, the risks associated with defence procurements, and important features of government contracts. Following this will be an introduction of project alliancing and its major aspects. Subsequently, the feasibility, acceptability, suitability, and necessity of adopting project alliance contracting in the context of the Canadian government, Canadian industry, and procurement in support of the Canadian Forces will be examined. Through this analysis, the focus will be on the aspects of risk mitigation through risk sharing and the relationships between government departments and the industry. This paper will close with a discussion of those areas that warrant further investigation in order to implement fully project alliancing in Canada.

## DEFENCE PROCUREMENT

In essence, defence procurement is a simple concept – fulfill the military requirements with the allocated resources in the defined timeframe. It is about putting the right equipment into the right, well-trained hands at the right time and being able to sustain this capability. To address this, defence acquisition needs to work within a framework of clear accountabilities, defined processes, and considerable scrutiny to ensure probity, effectiveness, and consistency with government policies. In reality, this

simple concept is not easily executed. An understanding of the context in which the procurement framework exists is necessary to understand the appropriateness of any innovative practice. In particular, knowledge of the basics of strategies, accountability, and processes are required.

Parliament's Standing Committee on National Defence has identified key strategic objectives for any defence procurement. These objectives are:

a. The procurement must fulfill the approved operational requirements of the Canadian Forces;

b. The procurement must be executed in a timely fashion;

c. Value for money must be obtained and further must be seen to be obtained;

d. Risk must be managed equitably with industry; and

e. The procurement strategy must enable government's national objectives such as industrial and regional benefits and technology base improvements.[26]

As was asserted before this Committee by the then Minister of Public Works and Government Services Canada (the agency accountable for the execution of procurement policy), all government acquisition must also fulfill the cornerstone requirements of

[26]House of Commons, Standing Committee on National Defence, *Report on Procurement and Associated Processes*,…, 7. These characteristics were drawn from the testimony of Pierre Lagueux. For more detailed background on these characteristics, refer to: Pierre Lagueux, "A National Defence Acquisition Strategy," in *Creating An Acquisition Model That Delivers*, Conference of Defence Associations Institute (CDA), Vimy Paper 1, April 2006; available from http://www.cda-cdai.ca/pdf/vimy_paper1.pdf; Internet; accessed 21 March 2009.

fairness, openness, and transparency.[27] Further, to the maximum extent possible, open competition is the government's preferred mechanism of contract sourcing.[28]

Before understanding the process, it is import to be cognizant of the accountabilities with respect to procurement set forth in the Treasury Board Management of Major Crown Projects policy.[29] These accountabilities include:

a. That the Project Leader be a senior manager within the sponsoring department accountable to the Deputy Minister;[30]

b. That the project leader be viewed as personally and visibly accountable for all aspects of the project; and

c. That a Senior Project Advisory Committee (SPAC) be established to advise the Project Leader on all aspects of the project and to carry out the procurement review of the project. [31]

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[27]House of Commons, Standing Committee on National Defence, "Minutes of Proceedings and Evidence, Tuesday, February 20, 2007," http://www2.parl.gc.ca/HousePublications/Publication.aspx?DocId=2722736&Language=E&Mode=1&Parl=39&Ses=1; Internet; accessed 21 March 2009. This was stated in the opening remarks of the then Minister for Public Works and Government Services Canada, the Honourable Michael Fortier. These characteristics have been codified in Part 5 of the Federal Accountability Act. Government of Canada, "Federal Accountability Act," http://www.faa-lfi.gc.ca/faa-lfi/faa-lfi00-eng.asp; Internet; accessed 12 February 2009.

[28]Treasury Board, "Contracting Policy," http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=14494&section=text#chal; Internet; accessed 12 February 2009.

[29]Treasury Board, "Management of Major Crown Projects," http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=12040&section=text#cha1; Internet; accessed 12 February 2009. A project is deemed to be a Major Crown Project when its estimated cost will exceed $100 million and the Treasury Board (TB) would assess the project as high risk. However, Treasury Board may require any project exceeding the sponsoring minister's delegated project approval authority to be managed as an MCP.

[30]In the case of DND, the project leader role is split with the operational sponsor being the Project Leader until the Project Definition Phase and ADM(MAT) assuming this responsibility from Project Definition through to Project close out.

[31]Treasury Board, "Management of Major Crown Projects." Notwithstanding the accountability of the Project leader established in this policy, it is the author's experience that industry does not fully recognize this and does not treat the Project Leader as the single executive level point of contact for the government.

The acquisition process for procuring Major Crown Projects (MCPs) in support of the Canadian Forces is adapted within the bounds of this policy for each procurement. Table 1 is a generic overview of the process from a point of view of the major inter-departmental transactions; it does not address the significant internal processes within each department.

Table 1 - Generic Procurement Process

| Lead | Action |
|---|---|
| CF | The CF identifies and validates a capability deficiency and prepares a Statement of Operational Requirement (SOR) to address the deficiency |
| DND | DND confirms the capability is justified by defence policy (for instance the CFDS) and identifies the capital funds and other resources required to undertake the MCP |
| MND | The MND sponsors the MCP in Cabinet, seeking Approval-in-Principle for any MCPs having "significant policy or fiscal framework implications"[32] |
| MND | The MND sponsors the MCP at Treasury Board (TB) seeking Preliminary Project Approval and Expenditure Authority to begin the project definition |
| DND | When Cabinet Approval-in-Principle and related Expenditure Authority have been granted, DND forms a project team that includes DND, Public Works and Government Services Canada (PWGSC) and Industry Canada (IC) personnel who cooperatively work with industry to complete the Project Definition Phase |
| SPAC | The Inter-departmental Senior Procurement Advisory Board endorses the Procurement Strategy[33] which includes the strategies for industry engagement, risk mitigation, necessity for a Fairness Monitor and contract type |
| MND | When MCP Project Definition is complete and the project remains both required and feasible, the MND returns to Cabinet for Effective Project Approval for the Implementation Phase (although this may be delayed until after an RFP is issued) |
| PWGSC | When both Effective Project Approval and Expenditure Authority are granted PWGSC proceeds with formally releasing the RFP |
| PWGSC | Bids are evaluated against pre-set evaluation criteria and done in three separate parts – technical by DND, financial aspects and contractual Terms and Conditions by PWGSC and Industrial and Regional Benefits (IRBs) by Industry Canada |
| PWGSC | Approval for Contract Award from Cabinet is sought and, once granted, PWGSC awards a contract on behalf of the government |
| DND | Thereafter, DND takes on overall responsibility for managing project implementation (aided by PWGSC and IC staff) until project completion |

Source: House of Commons, Standing Committee on National Defence, *Report on Procurement and Associated Processes*, February 2008, 3 - 4. The list of twelve points presented in the Parliamentary Report has been modified to better reflect current practice for Major Crown Projects.

[32]Treasury Board, "Management of Major Crown Projects Policy."

[33]Public Works and Government Services Canada, "Supply Manual,"…, Chapter 12.

These strategic objectives, accountabilities and processes are defining characteristics of managing defence procurement in Canada. They are necessitated by the significant resources being allocated towards fulfilling a critical responsibility of government and they reflect the considerable risks associated with defence procurement.

RISK

*Risk comes from not knowing what you're doing.*

*Warren Buffet*[34]

Risk is inherent in the complexities of defence procurements. The source of the major procurement risks are due to the incomplete nature or information sharing, the unpredictability of the process leading to the desired outcomes, and the measures imposed by government to manage risk. Risk cannot be avoided; therefore, it must be addressed through acceptance, mitigation, or transferral. These risk management strategies can either mitigate or exacerbate the level of risk. To understand the consequence of procurement risks, it is important to understand the risks involved in procurement not only from the government's perspective but also from industry's perspective. In order to better describe these risks, the risks to government from a programme level and through the phases of an acquisition will be described followed by a similar treatment of risks to industry. Additionally, the shared risks to government and industry will be discussed to give a complete picture of the total risks relating to defence procurement.

[34]Wikiquote, "Warren Buffet," http://en.wikiquote.org/wiki/Warren_Buffett; Internet; accessed 12 February 2009.

Defence procurement accountabilities and processes are founded in part upon the need to delivery capability. However, they are equally based upon the government's risk management policies and practices. It is important to note the difference between these as the policy can be seen to be more flexible than the actual or perceived risk posture adopted in any particular case. The government's risk management guidance is articulated through Treasury Board's Risk Management Policy.[35] The key to this policy is risk reduction to government. This can create a tension between the government self-underwriting risks that it alone is exposed to and the government ensuring that contractors are offered no relief for risk to which only they are exposed.[36] This tension arises since a large number of potential risks fall between these extremes. Further, in the opinion of some members of the defence industry, the government has a pervasive desire to off-load as much risk as possible from itself on to industry, often without a thorough analysis of the consequences.[37] For many procurements, it is difficult to determine who "owns" a risk as the risks change with time and often fall in the domain of shared risk – that is risks that cannot be clearly attributed to one party.

As has been discussed, the *Canada First Defence Strategy* is viewed as an opportunity for Defence as it provides a well-articulated and long-term strategic outlook

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[35]Treasury Board, "Risk Management Policy," http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=12253&section=text#cha1; Internet; accessed 12 February 2009.

[36]Treasury Board, "Risk Management Policy." The Treasury Board Risk Management Policy states that Departments must "ensure that contractors do not procure insurance on risks that are clearly the responsibility of the government, and that contractors are not indemnified by the government against the risks to which only the contractors are exposed."

[37]Peter Cairns, "Problems with the procurement system," *Canadian Sailings*, (August 25, 2008), 15; http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=34312491&site=ehost-live; Internet; accessed 21 March 2009. See also House of Commons, Standing Committee on National Defence, *Report on Procurement and Associated Processes*, February 2008, 7. In this report the committee concluded, based upon extensive input, that "risk must be managed equitably with industry" and that "There should be greater use of positive contractor incentives – not just penalties."

particularly in the domain of resource management. However, there are clear limits to the resources being made available. Figure 2 highlights the CFDS budget allocation within the Department of National Defence averaged over a twenty-year period. Of significant note, as indicated earlier in the introduction, is that over this length of time an average of 12% of defence expenditures will be allocated to equipment recapitalization. This equipment portion of the CFDS budget allocation covers all capital equipments costs and not just the costs of the major capabilities specifically identified in the CFDS.[38] Further, the 12% includes as part of the equipment costs the capital infrastructure costs associated with introducing the capability.

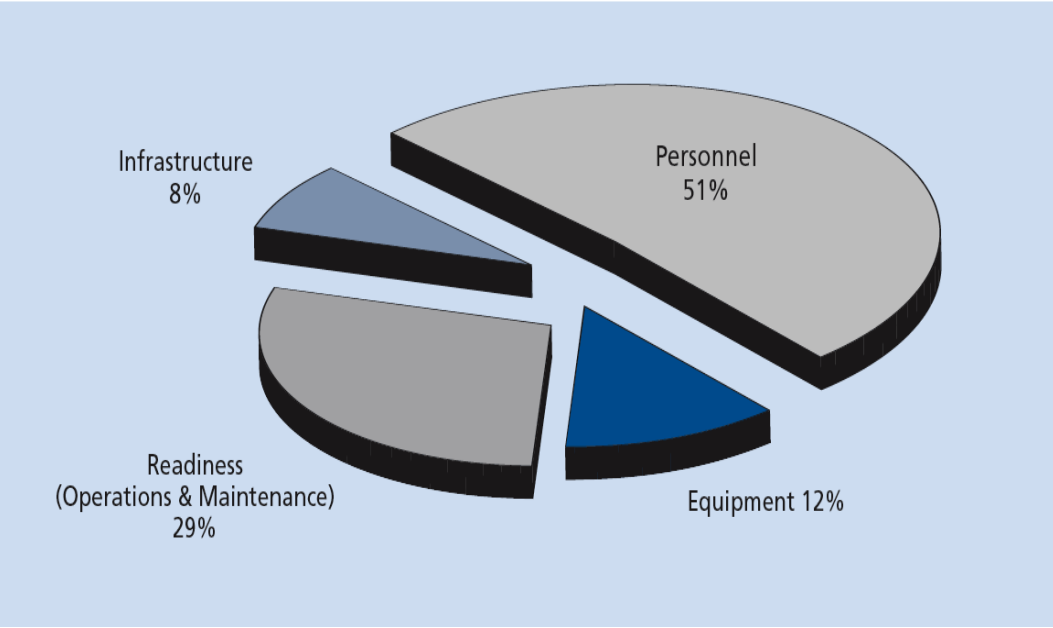


Figure 2 - *Canada First Defence Strategy* 20 Year Aggregate Allocation

Source: Department of National Defence, "Canada First Defence Strategy,"…, 11.

[38]Department of National Defence, "*Canada First Defence Strategy*,"…, 12.

In comparison with the percentage of the defence budgets spent on capital since 1960, a 12% allocation represents the lowest watermark since the 1972-73 fiscal year when capital was only allocated 9% of the defence budget.[39] To put this in perspective, Treddenick observes that, "suggestions have been made that an appropriate proportion would be between 25 and 35 per cent of the total budget. … Low proportions, for example, would require the stretching out of acquisition programs and the queuing of programs for funding, both of which lead to capability distortions of their own."[40]

Thus, defence is embarking upon a major renewal of capability with the lowest average long-term investment in capital in the last 35 years and an average that may be lower than the so-called decade of darkness.[41] Further, the detailed cost estimates of the major platforms identified in the CFDS are not yet known. As well, there has not been a full articulation of all the supporting capabilities required to support the missions in the CFDS – these capabilities must also form part of DND's investment plan. When one overlays these facts, it is evident that there is a significant, if not quantifiable, risk

[39]Lieutenant Colonel Ross Fetterly, "Budgeting for Defence: How much for Defence," in *The Public Management of Defence in Canada*. (Toronto: Canadian Forces College, 2008), 104. It is important to note that comparing different sources of budget allocations has to be done cautiously as the capital and O&M costs for both equipment and infrastructure are not always treated the same. Thus direct comparison of different sources is best viewed as providing a qualitative indicator as opposed to a conclusive quantitative comparison. A note in the CFDS highlights this difficulty. "This figure represents the capital costs of the new Major Fleet Replacements during the 20-year period reflected in the chart. The total capital costs of these platforms amortized over their useful life, which extend beyond this 20-year period, amount to $45-50B." Refer to Department of National Defence, "*Canada First Defence Strategy*,"…, 12.

[40]John M. Treddenick, "The Defence Budget," in *Canada's International Security Policy*, ed. David B. Dewitt and David Leyton-Brown, 413 -454 (Scarborough: Prentice-Hall Canada Inc., 1995), 422.

[41]Mike Blanchfield, "Top General Calls Liberals Rule 'Decade of Darkness,'" *Ottawa Citizen*, 17 February 2005; http://www2.canada.com/ottawacitizen/news/story.html?id=d569d0fb-d9cf-4119-84cb-39dd89571625; Internet; accessed 12 February 2009. In a speech to the Conference of Defence Association Institute in Ottawa the Chief of Defence Staff, General Rick Hillier stated, "Over the past one to two years, we have begun to fully realize the immense, the negative impact of the defence expenditure reductions in 1994 and the lasting, almost negative legacy that they brought into effect that has to be put right" He further added that the resource reductions, "left some deep wounds ... in the Canadian Forces over this past, what I would call, a decade of darkness."

associated with delivering the required capabilities based on the allocated resources. Programmatically, for the government this is perhaps the greatest single risk associated with the CFDS and the broader efforts to reequip the CF. As the government has defined its requirement and its available resources, there will be considerable pressure on DND and the CF to execute the CFDS as presented. Realistically, it can be expected that there will be amendments to the CFDS driven by changes in the security environment and the refinement of both the actual requirement and the required resources to meet the requirement. Nevertheless, for strategic planning purposes it is prudent to expect the level of resources will not increase significantly. In this context, the risk that must be managed is the viability of the CFDS and the underlying capital acquisition plan within a resource envelope that will not likely be significantly greater than what has been already committed to by the government. Thus, executing individual procurements will not only transpire under increased probity and oversight as compared to the past but will also be subject to greater scrutiny with respect to capability delivered versus cost. In this paradigm of fixed costs, performance and schedule are the only variables that are left to be risk-managed. This is not a new situation. As Bland has noted, one of the Canadian facts of national life is, "National funds are always limited and, because there are no threats nor any imperative purposes for defence spending, defence policy will be driven by what is available, not by what is needed."[42] Hence, as the available budget has been defined, only the performance of the CFDS' capabilities and their delivery schedules can change.

[42]D.L. Bland, "Everything Military Officers Need to Know about Defence Policy-Making in Canada." in *Canadian Strategic Forecast 2000: Advance or Retreat? Canadian Defence in the 21st Century*, edited by David Rudd, Jim Hanson and Jessica Bitt, Toronto: Canadian Institute of Strategic Studies, 2000, 18.

In addition to the defence perspective as seen through the lens of the CFDS, the risks to government as a whole must be viewed from the perspective of the participating departments. It is clear that what is perceived as a risk by one department may not be perceived as high a risk by another department. This is exemplified by the risks associated with industrial and regional benefits (IRBs). Industry Canada, the department responsible for industrial regional benefits, normally views IRBs as easily achievable and not a constraint on any single procurement as operational requirements must be met as a first principle.[43] Sponsoring departments often view Industry Canada's requirement as diverting scarce project monies from capability in order to support another government policy. This difference in perspective is quite natural because there are competing goals from government as it tries to balance meeting the needs of Defence with fostering competitive Canadian industries and other regional social-economic needs.

Ultimately, the key risks to Defence at the project level are related to performance, cost, and schedule while the key risks to industry are those associated with profit, reputation, and market share. Project risks are normally assessed through the phases of a project: the pre-contract phase, the contracting phase, the contract administration phase, and the post-contractual phase.[44] However, for the purposes of this paper only the risks associated with the first three phases will be concentrated upon as the post-contractual phase is largely administrative if the contract objectives have been

[43]Industry Canada, "Canada's Industrial and Regional Benefits Policy - Briefing to the Halifax Class Modernization Industry Working Group," available from http://www.forces.gc.ca/admmat-smamat/hcmfelex-mchpdvdf/documents/CSI_Working_Group/IRB_Presentation_20Jun07.pdf; Internet; accessed 12 February 2009, 4.

[44]Public Works and Government Services Canada, "Supply Manual,"…, Section 12. The procurement process has four phases: *Pre-contractual phase* which includes activities related to requirement definition and procurement planning; *Contracting phase* which includes all activities from bid solicitation to contract award. *Contract administration phase* which includes activities such as progress monitoring, delivery follow-up, payment action, etc; and *Post-contractual phase* which includes file final action and close out.

successfully met. Further, the focus will be on the pre-contract phase as this is the phase wherin the scene is set for future success or failure.

The pre-contract phase is when the project requirements are defined and the procurement strategy is set. Within the context of procurement for defence in Canada, there are two key aspects to the requirement: the operational requirements and the business requirements including the industrial and regional benefits requirements. Getting the operational requirement completely right is not always achievable as the requirement must not only respond to a range of threats but it also must be affordable and within stated ambitions. Over time, even the best-crafted statement of requirement will be subject to influences that may cause it to be less likely to fill the actual need. These influences are dominated by two factors: the constantly evolving security environment and the ongoing advancement of technology. The impacts of technological change are not so much related to buying the newest and the best but more related to the fact that the threat will likely be adopting these technologies. Thus, it can be argued that the evolving security environment and ongoing change of technology are tightly coupled factors affecting a statement of requirement and that these factors exist throughout the life of a project. Although producing the operational requirement is a government led activity, the nature of defining the operational requirements should include interaction with industry as early as possible to ensure both the achievability of the requirement and rough order of magnitude cost of delivering the capability are understood.

The business requirements are reflected in the overall procurement strategy wherein the interaction with industry is defined, the type of contract is laid out, and the essential ingredients of risk management strategies as articulated as the contractual terms

and conditions are outlined. The challenge in defence procurement is that government is often dealing with a monopoly or near–monopoly situation with industry. This is due to the limited number of defence contractors and can be further exacerbated by any policies that further limit the pool of available contractors such as the applications of IRBs or constraints due to security as exemplified by a National Security Exception.[45]

Although the government mandates a buy-in Canada approach for several defence industry programmes for national security reasons,[46] the overall goal of the national industrial policy is to foster a globally competitive industry.[47] The National Aerospace and Defence Strategic Framework indicates that the defence industry is internationally competitive based on the key indicators of competitiveness: "exports, trade balance, value-added, and employment."[48] The goal of Canada's IRB policy is in part to support the Canadian defence industrial base (CDIB)[49] as well as to ensure that companies across Canada can derive benefits from defence procurements. The IRB policy ensures

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[45]Department of National Defence, "DAOD 3016-0, National Security Exception Under Trade Agreements," http://www.admfincs.forces.gc.ca/dao-doa/3000/3016-0-eng.asp; Internet; accessed 12 February 2009. National Security Exceptions are "clauses in trade agreements are intended to ensure that a government is not prevented from taking any action or protecting any information in relation to its procurements that it considers necessary to safeguard its security interests. The NSE procedure shall be applied only if a specific security interest is identified."

[46]Alan S. Williams, *Reinventing Canadian Defence Procurement: A View from the Inside,…*, 58 – 62.

[47]Department of Finance, "Advantage Canada – Building a Strong Economy for Canadians," available from http://www.fin.gc.ca/ec2006/pdf/plane.pdf; Internet; accessed 12 February 2009, 73.

[48]Industry Canada, "National Aerospace and Defence Strategic Framework," available from http://www.ic.gc.ca/eic/site/ad-ad.nsf/vwapj/nasf-csna_eng.pdf/$file/nasf-csna_eng.pdf; Internet; accessed 12 February 2009, 3.

[49]Lieutenant Colonel Ross Fetterly, "Budgeting for Defence: How much for Defence,"…, 65. The Canadian Defence Industrial Base (the CDIB) is that portion of the Canadian economy that is associated wholly or partially with the provision of defence goods and services. It is an economic sector that suffers from both a lack of overall policy direction and paucity of hard information on its efficacy in meeting economic goals. Moreover, the CDIB is more than an economic entity: it has societal and political aspects. It represents jobs throughout Canada and it represents the part of the economy that receives a considerable amount of the Canadian government's discretionary spending.

opportunities are open to all high technology companies including those outside of the CDIB as well as allowing for benefits in unrelated sectors (e.g. services).[50]

Monopolistic behaviour by industry can lead to limited policy options being presented or inflated program costs. The taxpayer and government have no means of measuring outcome and thus are unable to determine efficiency and/or cost. The result of this is that government routinely seeks to protect itself against this uncertainty through a variety of means.[51] Recent experience with the Joint Support Ship project has exemplified one of the key manifestations of this information gap to the government in procurement – that is the risk of moral hazard. Moral hazard is the economic term that describes the uncertainty of the buyer when faced with a monopoly or near monopoly situation and thus lacks insight into cost, process effectiveness, and capabilities of the potential seller.[52] Although there has yet to be a full analysis released on the failure of the Joint Support Ship Request for Proposal, there are clear indications that over the course of time the cost estimates for this project were invalidated by changes in market factors. This is exemplified by the increase in cost of steel and the cost of risk avoidance

[50]Industry Canada, "The Industrial and Regional Benefits Policy Overview", http://www.ic.gc.ca/epic/site/ad-ad.nsf/en/ad03658e.html; Internet; accessed 25 November 2008.

[51]Public Works and Government Services Canada, "Supply Manual,"…, Section 6C. Amongst the many measure routinely used are: general and specific insurance requirements; design and product warranties; quality assurance programmes; financial security (including bonds or parental guarantees); bearing the costs of exchange rates and contract type (e.g. fixed firm price.)

[52]Moral hazard is associated with asymmetric information. As the degree of asymmetry increases, the incentive for the buyer to protect themselves through mechanisms that force increased transparency rises. These measures (which include process controls and reporting like the International Standards Organization (ISO) and the Allied Quality Assurance Program (AQAP) quality assurance, design warranties and earned value management systems) are inefficient allocation of resources and may also drive the buyer to exercise monopsonist leverage for firm-fixed contracts or specific incentive targets.

by the government resulting from the cost of the terms and conditions of the Request for Proposal.[53]

The means to address moral hazard are numerous but indirect. They include, amongst a host of solutions, the enforcement of inspection and quality assurance regimes, the requirement for various forms of insurance, and the provision of detailed corporate financial information with any bid. The first two items, those of oversight and protection, incur extra cost through the cost of implementation of suitable programs or the cost of insurance. From a customer perspective, these costs, particularly in a resource-constrained situation, normally come at a cost to performance. From an industry perspective, the costs affect competitiveness depending on the allowable risk exposure by any company. In essence, such terms and conditions seeking to address uncertainty can cause highly undesirable second order affects ranging from companies not pursuing individual contracts, failed bids that do not meet the terms and conditions, or efforts by industry to recoup costs once in contract. These are mechanisms based upon negative re-enforcement and are prone to lead to disagreements and potential disputes once in contract.

The comparable challenge for industry in the pre-contractual phase is that the government, and in some rare cases a grouping of governments, acts as a monopsonist – the government is in this instance the sole buyer. This situation can lead to similar imbalances seen with a monopoly situation. In this situation, government is the sole buyer with a number of potential sellers and can, therefore, dictate the terms and conditions of any procurement in a manner inconsistent with that of a true free market.

[53]Sharon Hobson, "Canada cancels support ship procurement,"…, 10.

From a seller's point of view this means there is considerable risk that any stated intention of the government could and can change. Equally possible, is the government not changing its needs even in the face of obvious market conditions. For instance, this is the situation when government commits to a procurement and states and holds to a timeline that is either over-ambitious or overtaken by events such as elections.

A current example of this situation is the ongoing efforts to replace the Buffalo Search and Air Rescue (SAR) aircraft. Pugliese writes that the Fixed Wing SAR project, "was originally announced in spring 2004 as a priority program; government and military officials said at the time it was being fast-tracked. It was estimated then that the first aircraft would be delivered in February 2006 and the project completed by April 2009."[54] This project has not yet issued a Request for Proposal, although the Minister of Defence stated in December 2008 that, "I hope to move very early in the new year toward procurement."[55] This case highlights why industry can reasonably be expected to be cautious about the government's procurement commitments and thus unwilling to enter into or limit the extent of long-term investments prior to a contract.

Trust is an underlying factor in all economic transactions and it is easier to achieve initially in a true free market situation where market forces support rational behaviour.[56] The case of the government being a monopsonist and industry potentially being a near or true monopoly highlights the importance of behaviour and trust in defence

[54]David Pugliese, "Canada Speeds $2.4B Search-and-Rescue Program Armed Forces Have Preferred C-27J Spartan Over C-295," *Defense News* January 5, 2009, 7.

[55]Defence Industry Daily, "Rescue Required: Canada's Search-And-Rescue Aircraft Program," http://www.defenseindustrydaily.com/rescue-required-canadas-searchandrescue-aircraft-program-03350/; Internet; accessed 4 March 2009.

[56]Greg Rooney, "The Project Alliancing and Relationship Contracting Experience," http://www.rkb.usp.ac.fj/gsdl/collect/dig-gov/index/assoc/HASH1e62.dir/doc.pdf; Internet; accessed 12 February 2009, 7.

procurement. In the pre-contracting phase, the government can be in the position of not fully disclosing its intent and industry can be in the position of not fully disclosing cost or risk. The impacts of the pre-contracting phase risks carry on through the ensuing procurement phases, particularly the contracting phase (which includes all activities from bid solicitation to contract award) and the contract administration phase (which includes activities such as progress monitoring, delivery follow-up, payment action).

During the contracting phase, the bid solicitation and contract award are characterized in general by a rigourous bid evaluation and a detailed negotiation leading to contract award. In many ways this phase is a voyage of discovery – the potential vendors present their plans, the governments picks the best fit (normally based upon a variant of best value for the government) and the government negotiates with the selected vendor in order to enter into contract. The resultant contract(s) entered into fundamentally represents a formalized relationship between the government and the contractor designed so that the objectives of contract are clearly articulated and achievable.[57] The key risks in this phase are due to moral hazard and the resultant discovery (through either the bid solicitation or contract negotiations) that there may not be complete shared understanding. The differences in understanding are based upon the limited information sharing in the pre-contract phase and they sow the seeds for project delay or future dispute. As previously discussed, the Joint Support Ship project is an example of a project that has been seriously delayed during this phase of procurement.

[57]Roger Quick, "Introduction to Alliancing and Relationship Contracting," http://www.jcarchitects.com/Introduction%20to%20Alliancing%20and%20Relationship%20Contracting.PDF; Internet; accessed 12 February 2009, 1.

It is in the contract administration phase where the execution of the contract occurs and the impacts of risk management strategies adopted in the previous phases are evident. It is not within the scope of this paper to examine fully all other risks incumbent in the contract administration phase. The salient point is that those risks identified in previous phases are realized, mitigated, or avoided at this point. The disposition of the actual risks during this phase, whether previously identified or not, will directly affect one or all of the outcomes of the project. This impact will be evidenced in one or a combination of any changes to performance, schedule, and/or cost. By way of example of the perils that can be experience during this phase of a procurement, it is instructive to examine the current state of the Maritime Helicopter Project (MHP). Although not all of the details have been made public by PWGSC and DND, the delivery of the first operational helicopter has been delayed from 2008 to 2010 at an additional cost of $117 million and with the Canadian government waiving its rights to impose contractual penalties for this delay.[58] This exemplifies the risks associated with regards to the government's will and ability to impose the potential negative incentives contained in most contracts.

Table 2 provides a summary of the risks identified in the pre-contracting, contracting, and contracted administration phases of procurement that are most pertinent to this paper. It also includes the risks associated to deliver a defence capability as a whole and in particular those procurements identified in the CFDS.

[58]David Pugliese, "New Engines for the Troubled Cyclone Helicopter?" *Ottawa Citizen On-Line*, available from http://communities.canada.com/ottawacitizen/blogs/defencewatch/archive/2009/02/20/new-engines-for-the-troubled-cyclone-helicopter.aspx; Internet; accessed 22 March 2009.

Table 2 - Procurement Risk Summary Overview

| Risk | Owner | | | |
|---|---|---|---|---|
| | Programmatic | Pre-Contract Phase | Contract Phase | Contract Administration Phase |
| Possibility that CFDS and underlying defence capabilities are unaffordable. | Gov't | - | - | - |
| Government as a monopsonist will negatively impact procurement (e.g. delay) and undermine commercial viability of meeting desired outcomes. | | Industry | Industry | Industry |
| Industry as a (near) monopoly will underplay cost or risk. | | Gov't | Gov't | Gov't |
| Requirements change (e.g. due to changing strategic environment or technology). | | Shared | Shared | Shared |
| Market/economic environment changes (e.g. effecting economic price indices, insurance markets, or exchange rates) | | Shared | Shared | Shared |

The major risks in defence contracting are common to most complex procurements. A major means of setting up the framework to manage these risks is through the selection of an appropriate contracting strategy.

## CONTRACTS

Complexity in procurement and its inherent associated risks are neither new nor particular to only the field of defence procurement. This level of complexity is often found in large public works projects, major construction projects, and those projects with significant degrees and development. By way of example, Marshall Vauban, Chief of Fortifications for Louis IV, wrote,

> *In recent years a considerable number of projects have not been finished, nor will they be finished. This disorder, Sir, is caused by the depressed prices frequently obtained for your works:…these cut prices are illusionary, especially as a contractor who is working at a loss is like a drowning man who clutches at a straw. In the case of the contractor this means he does not pay his suppliers, cheats everyone he can, underpays his men, getting the worst, not only using the most inferior materials, but quibbling over everything and always begging forgiveness over this and that. Abandon [this type of competitive tendering,] re-establish good faith, give the estimation of the work and not refuse a reasonable payment to a contractor who fulfils his obligations. That will always be the best transaction you will be able to find.*[59]

Marshall Vauban's observations are as germane now as they were when he made them in the seventeenth century. He clearly articulated a number of the consequences of the behaviour of contractors and he was also clear in saying the duty lay with the government to show leadership in resolving this unhealthy relationship.

In the intervening centuries, the nature of the basic contract has not changed radically. Although there are a number of new methodologies that aim at reducing risk the underlying theme of risk transfer to the supplier often remains the same.[60]

The primary contracting method used in all procurements, including defence procurement, is via what is often referred to as a traditional contract.[61] This form of contract has explicit terms and conditions with clearly defined allocation of risk. This type of contract is arguably the most appropriate when all risks are known, and hence can be apportioned to the correct owner, and there are clearly understood project costs,

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[59]Marshall Vauban as quoted in Greg Rooney, "The Project Alliancing and Relationship Contracting Experience,"…, 7.

[60]Greg Rooney, "The Project Alliancing and Relationship Contracting Experience,"…, 7.

[61]Todd Sandler and Keith Hartley, *The Economics of Defense* (Cambridge: Cambridge University Press, 1995), 136-137. Traditional contracting is encompassed by the three contracting methods identified by Sandler and Hartley: fixed price contracts; cost-plus contracts and incentive contracts. [61]

requirements and schedule. Within the domain of defence procurement, this type of contract is best suited when well-known, well-proven, well-suited equipments are available from one or, preferably, more trusted suppliers. The recent procurement of the C-17 Globemaster as an off-the-shelf procurement of both the aircraft and its logistics support is an example of this type of complicated but low risk procurement. This purchase benefited from the availability of a proven aircraft and support system that could meet a well-defined and high-level statement of requirement and be delivered well under the 15-year average procurement timeline.

Very few defence procurements and none that are truly complex meet these criteria.[62] As the degree of complexity of a project increases, the range and affects of known and unknown unknowns increases as well. It is in this light of increased uncertainty that Donald Rumsfeld's quote on unknowns applies to procurement, "We know there are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns - the ones we don't know we don't know."[63] Although this statement has been ridiculed for its lack of clarity, it illustrates well the conundrum of managing unknowns that is at the heart of strategic leadership and equally at the heart of complex procurement management.

When a traditional contract runs into significant challenges, the resultant behaviour is to seek a form of remedy that uses the contract as the basis of resolution.

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[62] In the C-17 case, this complicated procurement had many diverse elements that needed careful management. This differs from complex procurements in that most of the significant risks could be quantified and thus detailed risk management strategies could be implemented. Complex procurements, on the other hand, deal with many more intractable risks and thus exhibit the behaviour of a wicked problem.
[63] John Ezard, "Rumsfeld's Unknown Unkowns Takes Prize," http://www.guardian.co.uk/world/2003/dec/02/usa.johnezard; Internet; accessed 13 February 2009.

Whether this resolution is sought through mediation, alternate dispute resolution, or litigation, the process is often adversarial and leads to an outcome that is often a win/lose result.[64] As this type of a resolution is essentially zero-sum, the path to resolution is hampered by understandable human behaviour that prevents reaching a solution that is optimal for all parties. Recognizing that any such complex contract, in all likelihood, will have more than one conflict, the resolution through an approach that leads to a win/lose outcome (whether consciously or subconsciously) is prone to set the scene for further conflict. This is a result of basic psychology – "trust is often the first casualty in conflict."[65]

In order to deal with these complex cases there have been a number of variations upon the theme of traditional contracts that have been applied. Two of the most common variations are partnering and performance/incentive contracts. Partnering is a form of contract wherein a partnering agreement forms an adjunct to a traditional contract. The aim of the partnering agreement is to recognize the desired behaviour of all parties in a contract that is agreed upon by all parties in order to meet the desired project outcomes. This form of contacting has been used in both the public domain and for large, complex construction projects and engineering projects. As with a traditional contract, there are a number of means to mitigate any conflict between parties; however, at the end of the day the legally binding document is not the partnering agreement but rather the legal contract. Hence, although there is a commitment to partnership, the recourse in event of conflict is

[64]Roger Quick, "Introduction to Alliancing and Relationship Contracting,"…, 1. Quick points out that, "The historical development of the law of contract necessarily resulted in parties to contracts being able to treat another party as an adversary."

[65]Morton Deutsch, Peter T. Coleman, Eric Colton Marcus, *The Handbook of Conflict Resolution* (San Francisco: Jossey-Bass Publishers. 2006) 104.

to apply the rules of the contract. This attempt to apply principle-based management in a rules-based framework does not force all parties to adopt the desired behaviour but rather leaves a significant "out" that can lead back to a win/lose result.[66]

Performance/incentive contracting is another means to attempt to contract for positive behaviour leading to positive outcomes. The key attribute of these types of contracts is the concept of incentives for the supplier when specific performance objectives are met. One of the weaknesses of performance/incentive contracts is that of ensuring long-term benefits. Lewis argues that, " realizing that good performance will be rewarded with more demanding targets in the future limits the incentives for contractors to reveal their true abilities to the procurer."[67] Although this may not be evident in any single procurement, it can be an issue when dealing with multiple defence contracts to a limited number of companies as is evident with the Canadian situation. Thus, performance/incentive contracts can exhibit another manifestation of moral hazard – the uncertainty regarding setting meaningful benchmarks against which to measure performance.

Although these variations on traditional contracting are aimed at reducing risk to both the government and the contractor, they do not address the issue of incomplete information. This is in part because in defence procurement "variables like the cost of production or the quality of the weapons supplied cannot be objectively measured or verified."[68] It is also because these variations do not remove the key incentives to

[66]Roger Quick, "Introduction to Alliancing and Relationship Contracting,"…, 7.

[67]Tracy R. Lewis, "Defence Procurement and the Theory of Agency," in *Economics and National Security*, ed. J. Leitzel, 57-72(Boulder: Westview Press, 1993), 66.

[68]Tracy R. Lewis, "Defence Procurement and the Theory of Agency,"…, 58.

withhold information: the need to protect competitiveness and the desire to have a more complete picture to be better positioned to "win" in cases of conflict.

Notionally, the challenge in choosing the correct contracting vehicle is illustrated in Figure 3. As the complexity and inherent unknowns in a procurement increase, the suitability of traditional contracting methodologies decreases. This is represented by the Traditional Contracting Strategy curve. Observing performance in the engineering and construction project area, Ross has noted that, "Many of the more extreme examples of adversarial conduct under contracts occur because the owner when setting up the contracting arrangements, attempts to transfer risks to parties who are not in the best position to manage those risks."[69]

This particular behaviour has been noted as a concern with Canadian defence procurement. By way of example, General Dynamics Canada withdrew from the competition for the HALIFAX Class Modernization/Frigate Life Extension (HCM/FELEX) Projects Combat Systems Integration Design and Build and In-Service Support contracts "in light of unviable commercial terms and conditions."[70]

[69]Jim Ross, "Introduction to Project Alliancing (April 2003 Update at the Alliance Contracting Conference Sydney),"…, 2.

[70]Jane's Defence Weekly, "General Dynamics withdraws from the Canadian frigate contest," http://www.janes.com/extract/jdw2008/jdw36794.html; Internet; accessed 13 February 2009.

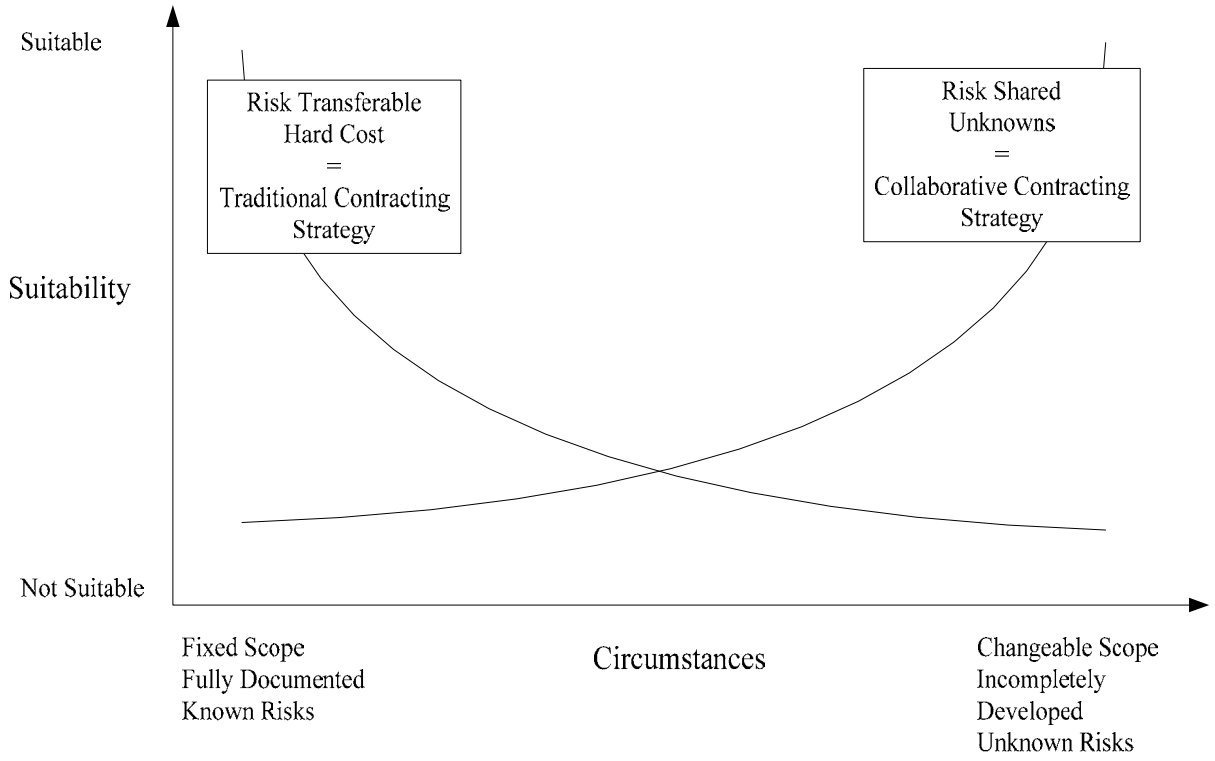


Figure 3 - Contracting Strategy Suitability

Source: Jim Ross, "Introduction to Project Alliancing (April 2003 Update at the Alliance Contracting Conference Sydney),"…, 4.

The enhancements to traditional contracting such as partnering and performance/incentive contracting are aimed at better delivering successful contract results through developing a more collaborative, and hence less adversarial, relationship between the customer and contractor(s). They are graphically seen as the lower end of the range of suitability for risky, complex projects represented by the Collaborative Contracting Strategy curve shown in Figure 3. They are in essence rudimentary attempts aimed at establishing relationship contracting. Relationship contracting has been defined as "a process to establish and manage the relationships between the parties that aims to remove barriers, encourage maximum contribution, and allow all parties to it to achieve

success."[71] However, due to the recourse to a rules-based conflict resolution methodologies, these contracting mechanisms are not wholly representative of a principle-based relationship.

The drive towards relationship contracting was motivated by a need to respond to key concerns previously discussed with respect to traditional contracts. Research conducted in the 1980s indicated that, "Claims and disputes have now become an endemic part of the construction industry. …The problem of claims and disputes in the construction industry is a world wide phenomenon."[72] In an attempt to understand better the nature of contracting deficiencies, the Australian Constructors Association conducted an extensive client survey that generated the following feedback:

a. Shortcomings existed in contracting strategies that had a negative effect on project outcomes;

b. Adversarial behaviour was reinforced by many existing contractual relationships, particularly those based on traditional contracts; and

c. Most interviewees agreed with the following attributes of a successful project:

    i. A need for clarity and understanding of the project scope;

    ii. The shared understanding of the risks and the appropriate apportionment of the responsibility for managing risks;

[71]Australian Constructors Association, "Relationship Contracting – Optimising Project Outcomes," available from http://www.constructors.com.au/Relationship_Contracting/ACA_Relationship_Contracting.pdf; Internet; accessed 13 February 2009, 4.

[72]Jim Ross, "Introduction to Project Alliancing (April 2003 Update at the Alliance Contracting Conference Sydney),"…, 1.

iii. Gain/Pain sharing arrangement whereby the contractor risks profit and not project overheads in return for an increase in profits for achieving a superior outcome; and

iv. Clear communications through all levels of the engaged parties associated with proper empowerment for decision-making at all levels.[73]

With this feedback in hand the Australian Constructors Association articulated the following general principles for relationship contracting:

a. Completion within cost;

b. Completion on time;

c. Strong people relationships between the parties resulting from mutual trust and cooperation, open and honest communication and free sharing of information;

d. Optimum project life cycle cost; and

e. Achieving optimum standards, during execution and in the service for safety, quality, industrial relations, environment, and community relations.[74]

The principle of strong relationships built on trust is the major distinguishing characteristic of relationship contracting, as the remaining aspects can exist to varying degrees in more traditional contracting methods.

Figure 4 illustrates the spectrum of relationship contracting. At the low end of relationship range is the traditional contract. Objectively, traditional contracts are well

[73]Australian Constructors Association, "Relationship Contracting – Optimising Project Outcomes,"…, 6.
[74]*Ibid*., 6.

suited to meet the criteria of completion within cost and on time for non-complex procurements. The degree of importance of relationships to the contract increases through partnering and performance/incentive strategies to the upper end of relationship contacting – project alliancing. Of greatest significance, it is the effective strengthening of trust and cooperation between parties through contracting for behaviour that is the key attribute of increasingly robust forms of relationship contracting.

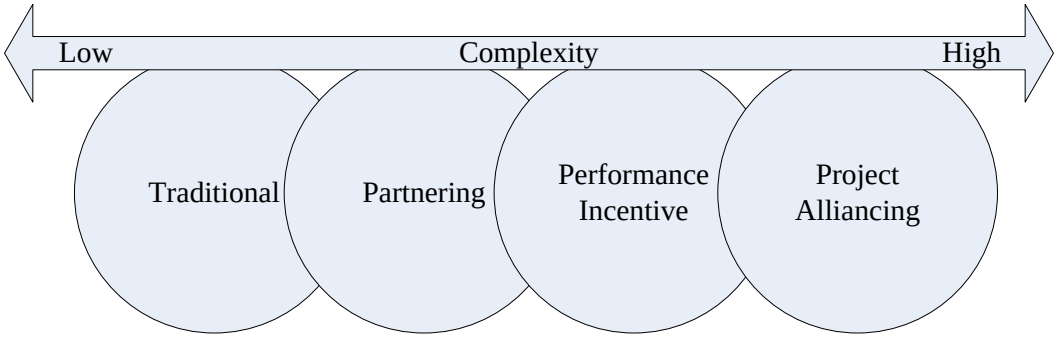


Figure 4 - Degree of Complexity and Contract Type Options

Source: Adapted from: Roger Quick, "Introduction to Alliancing and Relationship Contracting,"…, 1.

PROJECT ALLIANCING

As noted previously, the drive for improved contacting has been an international challenge and the engineering and construction industries have formed a central element of project alliancing's development. The first example of project alliancing was British Petroleum's (BP) Andrew Project in the North Sea during their early 1990s.[75] BP recognized that were many risks and uncertainties with this project and felt that the new approach to contracting was required. The key aspects of BP's adopted strategy were:

[75]Greg Rooney, "The Project Alliancing and Relationship Contracting Experience,"…, 3.

a. Equitable risk sharing data between all parties;

b. Handling of all the conflict, disagreements, and disputes internally to the project;

c. A guarantee that all parties would receive 100% of all their project outgoings and agreed profit; and

d. The agreement by all parties to exceed normal business practice standards and consequently to receive rewards for bettering the agreed standard and penalties for failing to meet the same standard.

As a consequence of adopting this approach, BP recognized a savings in capital costs of between 20 and 30%.[76]

Since BP first used the innovative approach of project alliancing, it has become an accepted contracting method internationally. This is particularly evident in Australia where project alliancing has been used for a number of major public works and defence projects.[77] Of particular note, it is the contracting strategy for the capability upgrades of the ANZAC class frigate under the ANZAC Ship Alliance[78] and it has been chosen as the contracting strategy for the build phase of the Royal Australian Navy's new Air Warfare

[76]*Ibid.,* 3.

[77]State of Victoria, Australia, "Project Alliancing Practitioner's Guide,"…, 95.

[78]Australia, Defence Materiel Organization, "SEA 1348 Ph 2 - ANZAC Ship Project," http://www.defence.gov.au/dmo/msd/sea1348/sea1348p2.cfm; Internet; accessed 13 February 2009. In July 2001, the Australian Defence Materiel Organization signed a long term alliance agreement with Tenix Defence and SAAB Systems covering the development of all future capability change packages for the ANZAC Class Frigates of which 8 were built for Australia and two were built for New Zealand commissions between 1996 and 2006.

Destroyer Programme.[79] These decisions are consistent with the requirement to use alliancing whenever it is appropriate that is articulated in the Australian Naval Shipbuilding and Repair Sector Strategic Plan.[80]

The evolution of project alliancing has continued to be based on the concepts of a shared risk and shared pain or gain. The principles now applied are based upon this evolution and were documented by Jim Ross, the Australian doyen of project alliancing, as:

a. The alliance participants share collectively responsibility for delivering the project;

b. The alliance participants selectively share ownership of all risks and conversely all opportunity is associated with the delivery of the project; and

c. The alliance participants share in the either the gain or pain of attaining actual project outcomes as measured against the agreed targets.[81]

The difference between traditional contacting and project alliancing strategies is summarized in Figure 5. This figure emphasizes the major differences between risk transfer under traditional contracts versus risk sharing under project alliancing. Inherent to the issue of risk sharing is the mechanism for conflict resolution. Central to the

[79]Air Warfare Destroyer Alliance, "AWD Alliance," http://www.ausawd.com/alliance.html; Internet; accessed 13 February 2009. In April 2005, the Australian Government selected Raytheon Australia Pty Ltd (Raytheon) as the Combat System Systems Engineer, and in May 2005 selected ASC AWD Shipbuilder Pty Ltd (ASC) as the Shipbuilder whom together form the three parties of the Air Warfare Destroyer Alliance .

[80]Australia, Defence Materiel Organization, *Australian Naval Shipbuilding and Repair Sector Strategic Plan*, http://www.defence.gov.au/dmo/msd/nsr_sector_plan_websiteversion_26sep02.pdf; Internet: accessed 4 April 2009.

[81]Jim Ross, "Introduction to Project Alliancing (April 2003 Update at the Alliance Contracting Conference Sydney),"…, 1.

concept of project alliancing is the aim of addressing conflict within the alliance without the need to resort to either external dispute resolution or litigation. This differs from traditional forms of contracting that are based upon an attempt to allocate clearly risks to individual parties. Basically, project alliancing differs from traditional contracting in that it is based upon the collective vice allocative approach to risk sharing.

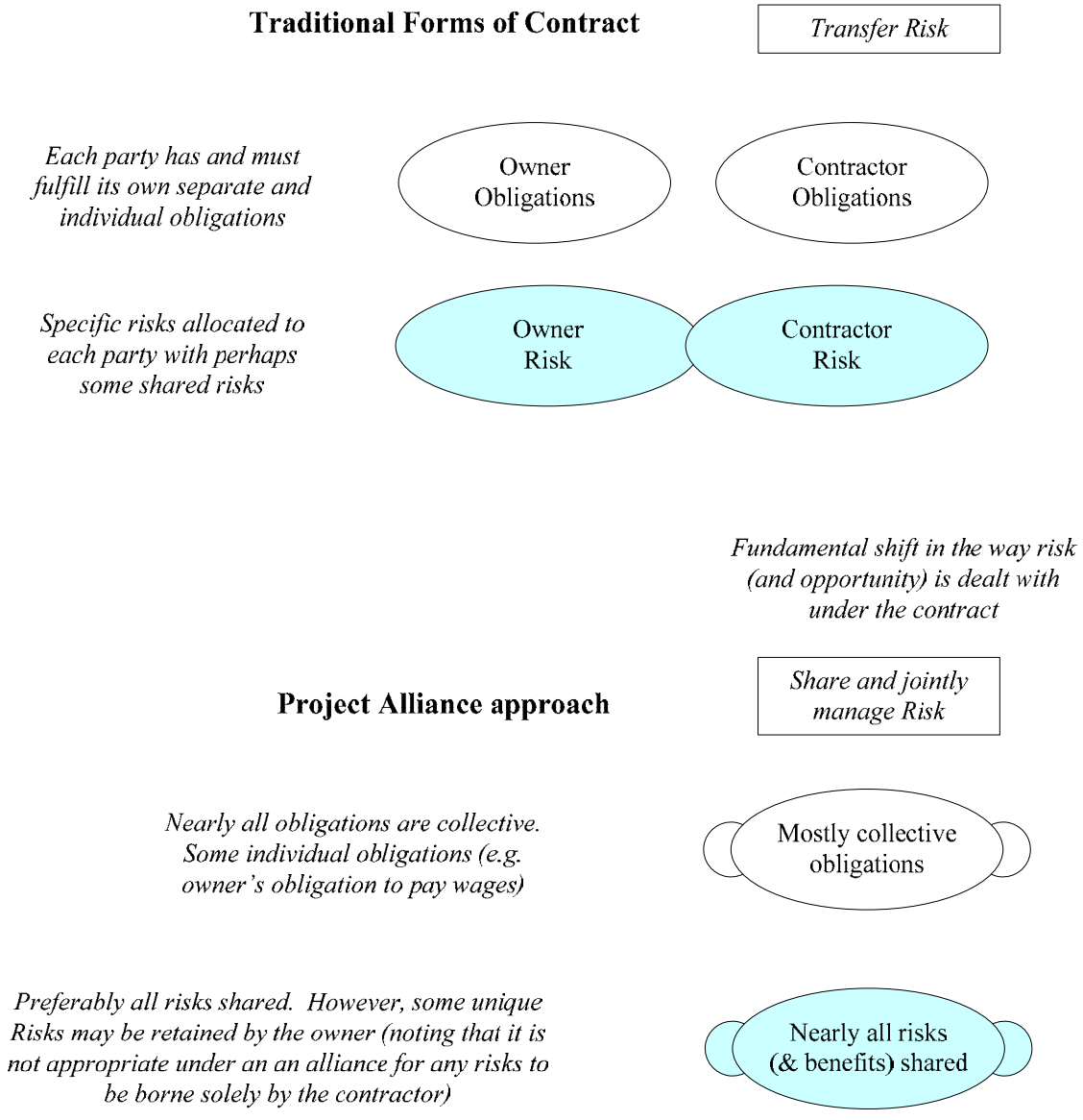


Figure 5 – Comparison of Traditional Contracts and Project Alliances

Source: Adapted from: State of Victoria, Australia, "Project Alliancing Practitioner's Guide,"…, 10.

In order to better understand project alliancing, three aspects will be discussed – its underlying tenets, the means of entering into a project alliance, and the organization of a project alliance. In order to provide a consistent foundation, this discussion will draw principally from the ongoing application of project alliancing in the public domain of contracting in Australia.

Building upon the lessons learned from projects since British Petroleum first used project alliancing, the common framework for project alliances has grown to cover five distinct characteristics, each of which is discussed below.[82] First, there is a collective sharing of all project risks. The collective sharing of nearly all risks is an evolution that recognizes that, although it is desirable to share all risks, there remain a small number of risks that cannot be shared, largely because they are uninsurable.[83] By way of example, catastrophic failure cannot be fully insured. For instance, the PWGSC Supply Manual recognizes that, in the cases of ship repair and ship building, "an insurance program should be tailor-made to the specific risks of the ship building and repair contract, and should permit a cost-effective trade-off of the risks arising from the contractor's performance versus the potential insurance costs."[84] In setting up an alliance these exceptional cases must be identified.

Second, there is a no fault/no blame culture amongst all of the alliance participants. A no fault/no blame culture between all of the alliance participants negates the use of and need for external dispute resolution mechanisms except for the case of

[82]Jim Ross, "Introduction to Project Alliancing (April 2003 Update at the Alliance Contracting Conference Sydney),"…, 2.

[83]*Ibid.*, 2.

[84]Public Works and Government Services Canada, "Supply Manual,"…, Section 6C-2.

default of one of the alliance partners. This means that litigation or external mediation (for example, through alternate dispute resolution) are explicitly denied courses of action except as previously noted. The foundation for this characteristic is the wide experience in government and industry of litigation and dispute resolution as negative actions; the consequence of which is normally a win/lose mentality. Project alliancing is aimed at developing trust-based positive behaviours and thus conflict resolution is seen as part of the day-to-day internal management of the alliance.[85]

Third, payment for the non-owner (for ease of discussion the term industry participants will be used) is based upon the principle that core costs will be covered and that only profit is at risk for all alliance participants in case of poor performance against established benchmarks. The payment scheme that is widely adopted for project alliances is called the three-limb compensation model. At the core of compensation are three guiding principles – open-book availability of true costs, shared gain or shared pain, and maximum shared risk and opportunity. One of the key concerns discussed previously with respect to traditional contracting strategies is the issue of moral hazard. Project alliancing addresses this through both constructing an alliance framework that is based upon an integrated project team structure and building a process (to be discussed later) of entering into a project alliance agreement that ensures that costs and risks are fully exposed before the agreement is finalized. The three – limb compensation model is illustrated in Figure 6.

[85]Greg Rooney, "The Project Alliancing and Relationship Contracting Experience,"…, 3. Rooney presents an important aspect of conflict. Conflict brings the opportunity of better understanding a problem and this deepened understanding can be lost is the conflict resolution is left to outside agencies to resolve.

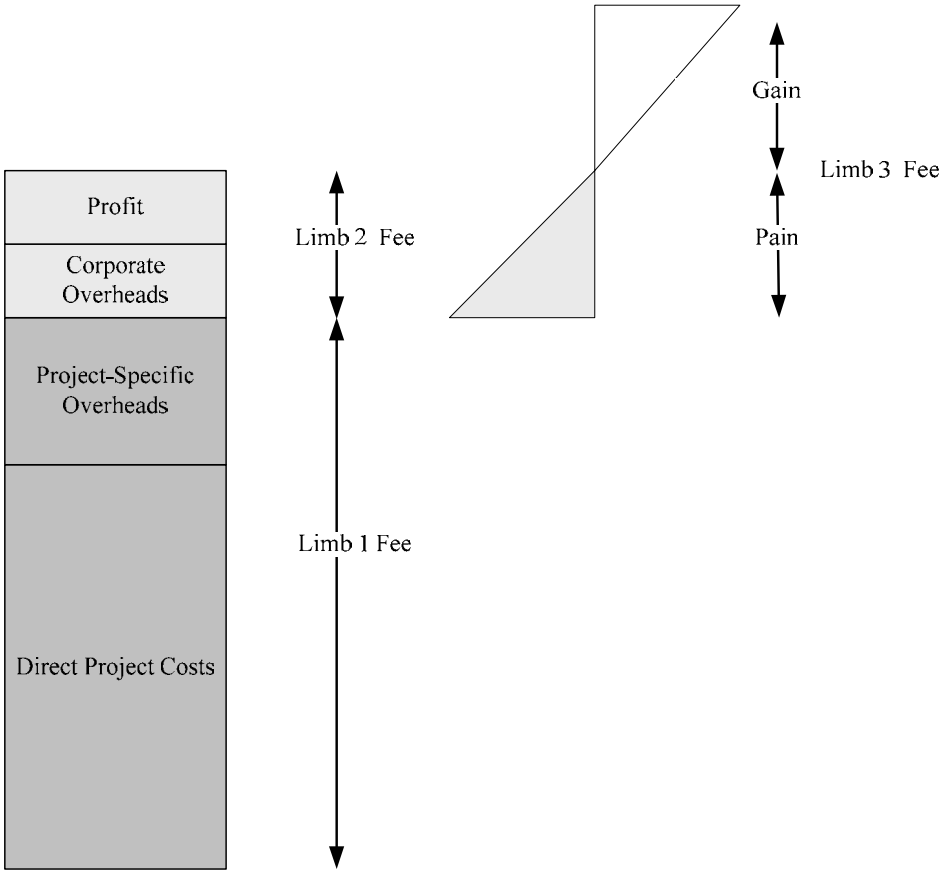


Figure 6 - 3-Limb Compensation Model

Source: State of Victoria, Australia, "Project Alliancing Practitioner's Guide,"…, 27.

The three limbs of this compensation model are:

a. Limb 1 consists of direct project costs and project-specific overheads. These costs are fully reimbursed based upon actual and audited costs;

b. Limb 2 consists of a share of corporate overheads and a prior agreed profit margin; and

c. Limb 3 consists of the funds associated with shared pain or gain. There is discretion in how to both apportion gain and reasonably limit pain. The norm

is to limit the pain to industry participants to a maximum of the Limb 2 fee. As well, the limit on gain is optional but is realistic to consider. One of the guards against unreasonable gain fees is the Law of Diminishing returns – the costs associated with marginal increases in improvement of project outcomes in terms of performance or schedule normally outweigh the benefit to be accrued. Pragmatically, a cap to gain is an important consideration in public funding, as benefit to a project must be balanced against the omni-present intense competition for scarce resources at the higher programme level.

Fourth, decision-making is exercised in a principle-based manner and requires unanimity on all significant project issues. Effective decision-making processes are an essential ingredient of managing any complex project. In managing such projects, it is easy to obtain buy-in for all participants' desired outcomes early in a project. The challenge is having a means of weathering the initial and inevitable major conflict while keeping a sense of teamwork. Although the no fault/no blame culture is essential to alliancing, it is not sufficient to allow for its successful execution. Supporting such a culture is the need for decision-making processes that support the best outcomes for the project. As with any team environment, this requires open communications with well-defined accountabilities and responsibilities. Further, within a project alliance this must all be accomplished in an environment of trust as all participants are equal partners and thus have an equal say.[86] In order to meet these requirements, decision-making processes must be based upon a principle-based philosophy as opposed to a rules-based regime.

[86]Jim Ross, "Introduction to Project Alliancing (April 2003 Update at the Alliance Contracting Conference Sydney),"…, 3.

Fifth, the execution of the project alliance work is based upon an integrated project team formed of personnel selected as best for the project. As the objective is ensuring the best for the project, there are two important aspects to building the team. First, the team structure is oriented around the concept of an integrated project team.[87] This brings significant potential benefits to an alliance. The primary benefit is based upon the requirement for open–book transactions to significantly mitigate the moral hazard of information imbalance. An integrated project team structure leverages off of the open-book approach through providing for, "the knowledge and authority needed to recognize problems and make cross-cutting decisions expeditiously."[88] Second, when constituting the core alliance project team, personnel must be selected based as much upon their ability to work in such a collaborative environment as upon their technical capabilities.

The implications of the basic characteristics of a project alliance influence directly the selection of the industry participants. To better situate the degree to which project alliancing fits within the current Canadian policies it is important to look at the generic process for entering into a complex procurement, which is:

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[87]United States of America, General Accounting Office, "GAO 01-510: Best Practices - DOD Teaming Practices Not Achieving Potential Results," http://www.gao.gov/new.items/d01510.pdf; Internet; accessed 13 February 2009, 2. Integrated Project teams (also known as Integrated Product Teams in the US) were first applied to defence procurement in the 1990s in the US The US General Accounting Office definition is, "Integrated product[/project] teams bring together the different professions or areas of expertise needed to design and manufacture a new product, such as engineering, manufacturing, purchasing, and finance. The essence of the integrated product team approach is to concentrate this expertise in a single organization together with the authority to design, develop, test, manufacture, and deliver a product."

[88]United States of America, General Accounting Office, "GAO 01-510: Best Practices - DOD Teaming Practices Not Achieving Potential Results,"…, 2. GAO-01-510, Best Practices notes that, "Integrated product teams work. Effective integrated product teams can make significant product development decisions quickly and without relying heavily on consultations with organizations outside the team." See also: United Kingdom, Office of Government Commerce, "The Integrated Project Team - Teamworking and Partnering," http://www.ogc.gov.uk/documents/CP0065AEGuide5.pdf for a detailed discussion of Integrated project teams in the partnering and alliancing contexts.

a. Concept Development Phase: During this phase DND creates the Statement of Requirement, defines the notional (rough order of magnitude) cost of the system (both the procurement and the in-service cost), profiles the risk jointly with PWGSC, and develops the procurement strategy jointly with PWGSC and IC. This phase often includes industry involvement;

b. Project Definition Phase: This phase further refines the requirement, develops the technical specification, engages industry and jointly with PWGSC and IC. For projects requiring developmental work, it is the norm that industry, through a tendered RFP, assists in the option development and confirmation of the feasibility of the project within the defined resource and time constraints. This engagement may be through selection of a engineering, logistic and management services contractor, or may be through selection of a limited number of competing teams with the ultimate aim of selecting one of the Project Development Phase contractors to implement the project; and

c. Project Implementation Phase: During this phase, one contractor[89] implements the project and prepares it for the in-service phase. This contractor may or may not be selected through the same process to provide in-service support for the procured system.

Project alliancing follows the same overall phasing but the means of selecting a contractor is significantly different. As this approach is built upon developing a

[89] Other options than a single contractor are possible. For instance the US has upon occasion pursued a second source model for implementation. See - Michael H. Riordan, and David E.M. Sappington., "Second Sourcing," RAND Journal of Economics 20, no. 1 (Spring89 1989): 41-58; http://web.ebscohost.com/ehost/pdf?vid=6&hid=116&sid=a8d553b3-6661-43dd-83da-a6bca35821f2%40sessionmgr107; Internet; accessed 13 February 2009.

relationship based upon trust and understanding, the process to finalize the alliance must have mechanisms for building trust and simultaneously protecting all parties if this trust cannot be built. Figure 7 is an overview of the phasing of entering into a project alliance.

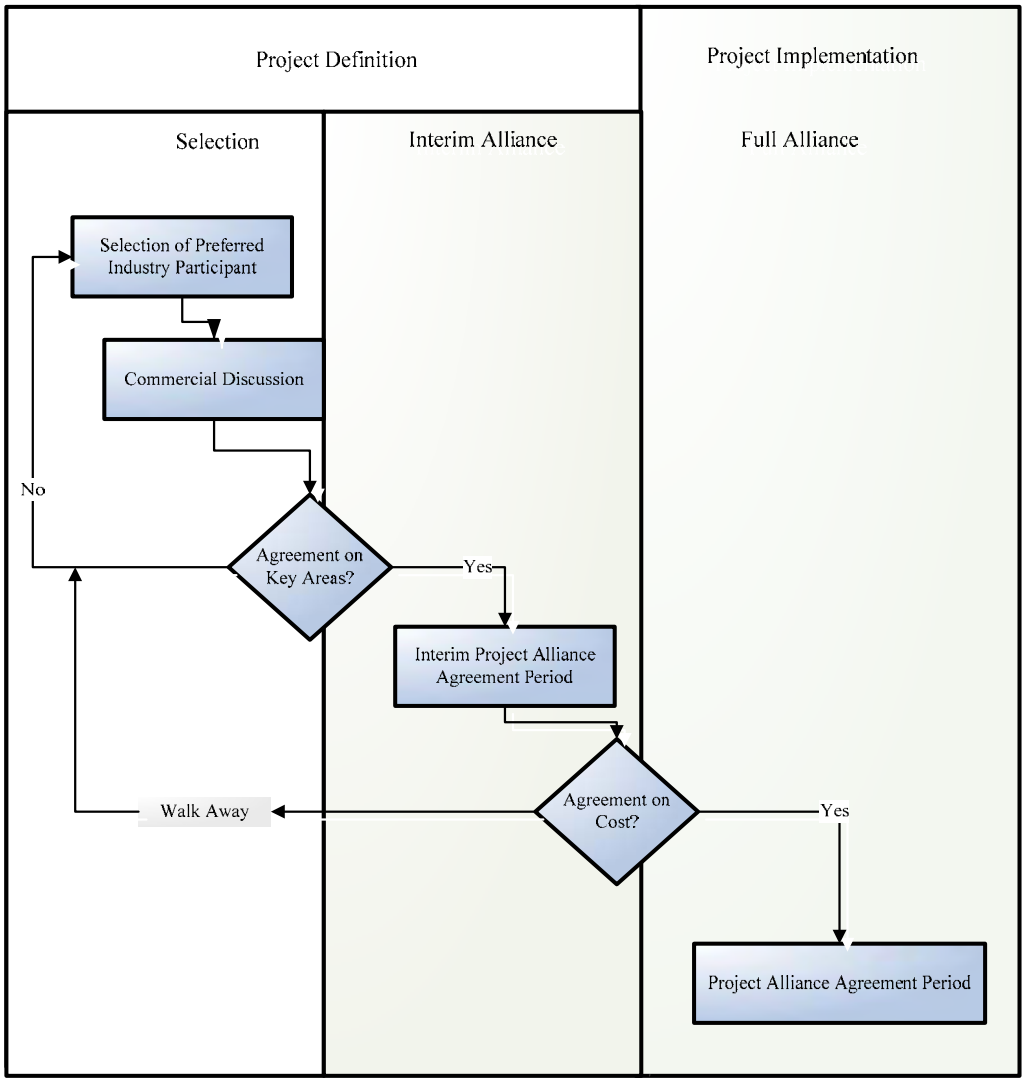


Figure 7 - Establishing a Project Alliance

Source: Adapted from Jim Ross, "Introduction to Project Alliancing (April 2003 Update at the Alliance Contracting Conference Sydney),"…, 3. This figure is based upon the Australian model but has been adapted to use Canadian defence terminology.

Figure 7 illustrates that instead of picking contractor(s) based upon technical and price proposals for either or both of the project definition and implementation phases, the industry participant is chosen during the project definition phase, which is broken into two parts: selection and the Interim Alliance sub-phase. Thus, a project definition would have an upfront selection of a preferred alliance partner, or partners, followed by a contracted Interim Alliance contract wherein the costs and risks of executing the project implementation are fully examined and agreed upon.

The potential alliance partner selection is done through a process oriented on capability and how the prospective participants envision working within the alliance structure. This selection is a critical process that must ensure the following factors are addressed:

a. The potential industry participant has the required technical, financial and management capabilities to conduct the work. These capabilities must be supported by a proven track record of success and demonstrated quality across the full spectrum of project management functions;

b. An understanding and commitment to the project alliance concept;

c. A willingness to commit to all project objectives as articulated by DND, PWGSC and IC and pursue “breakthrough” or stretch goals if they are included in the procurement; and

d. The appropriateness and quality of the proposed team (not only as individuals but also as an amalgam).[90]

Most significantly, this selection process does not factor in cost, as defining risks and costs are seen as the aim of early collaboration during the next phase. In essence, the selection process underlines the foundational concept that this is a relationship approach based upon contracting for behaviour.

Once a preferred industry participant is chosen, the government enters into commercial discussions aimed at ensuring the verity of its submission and addressing any uncertainties with respect to the key areas listed above. As indicated in Figure 7, if for any reason the parties cannot reach an agreement on the key areas then they can walk away and all parties can regroup.

Once an agreement is reached, the participants in the potential alliance enter into what is termed an interim Project Alliance Agreement (iPAA). The purpose of the iPAA is to scope the work required to fulfill the requirements to enter into the implementation phase through a Project Alliance Agreement (PAA). During the iPAA period the key activities are:[91]

a. Determining the cost of implementation of the PAA. This includes determining the Limb 1, 2, and 3 costs. The total cost is referred to as the Total Outrun Cost (TOC);

[90]Jim Ross, "Introduction to Project Alliancing (April 2003 Update at the Alliance Contracting Conference Sydney),"…, 11.Ross provides a detailed discussion of the important considerations in planning and executing the process to enter into a project alliance.

[91]See: Jim Ross, "Introduction to Project Alliancing (April 2003 Update at the Alliance Contracting Conference Sydney),"…, 3; and State of Victoria, Australia, "Project Alliancing Practitioner's Guide,"…, 9.

b. Determining other key targets;

c. Determining the schedule of delivery;

d. Detailing the means of ensuring probity including the terms of reference for external audit;

e. Determining the risks and risk mitigations;

f. Conducting required design work (if any);

g. Choosing the alliance team; and

h. Determining the value proposition for the alliance.

One of the key deliverables of the iPAA is determining the governance and organizational structure of the project alliance. Figure 8 summarizes the general organization and key responsibilities within a project alliance.[92]

Entering into an alliance is not a "fire and forget" exercise for corporate and senior management in any of the participating organizations. The success of an alliance is predicated upon top-down buy-in, support, and leadership. The top level of each organization will need to be fully cognizant of the agreed upon alliance principles and be disciplined in their consistent application. Although there is little evidence of political interference in procurement decisions in Canada,[93] there will be occasions of real or

[92]State of Victoria, Australia, "Project Alliancing Practitioner's Guide,"…, 12-14. This Guide provides details of the roles and responsibilities associated with a project alliance.

[93]Alan S. Williams, *Reinventing Canadian Defence Procurement: A View from the Inside,*…, 2. Williams indicates that he knew of no political interference in the procurement process during his ten-year involvement. However, his assertion is tempered as he notes that there were occasions when there were interfering delays in attempts to influence the market place and in particular to influence the "list of respondents."

potential conflict where lobbying by participants must be addressed and all parties be reminded of the agreed rules of the game.

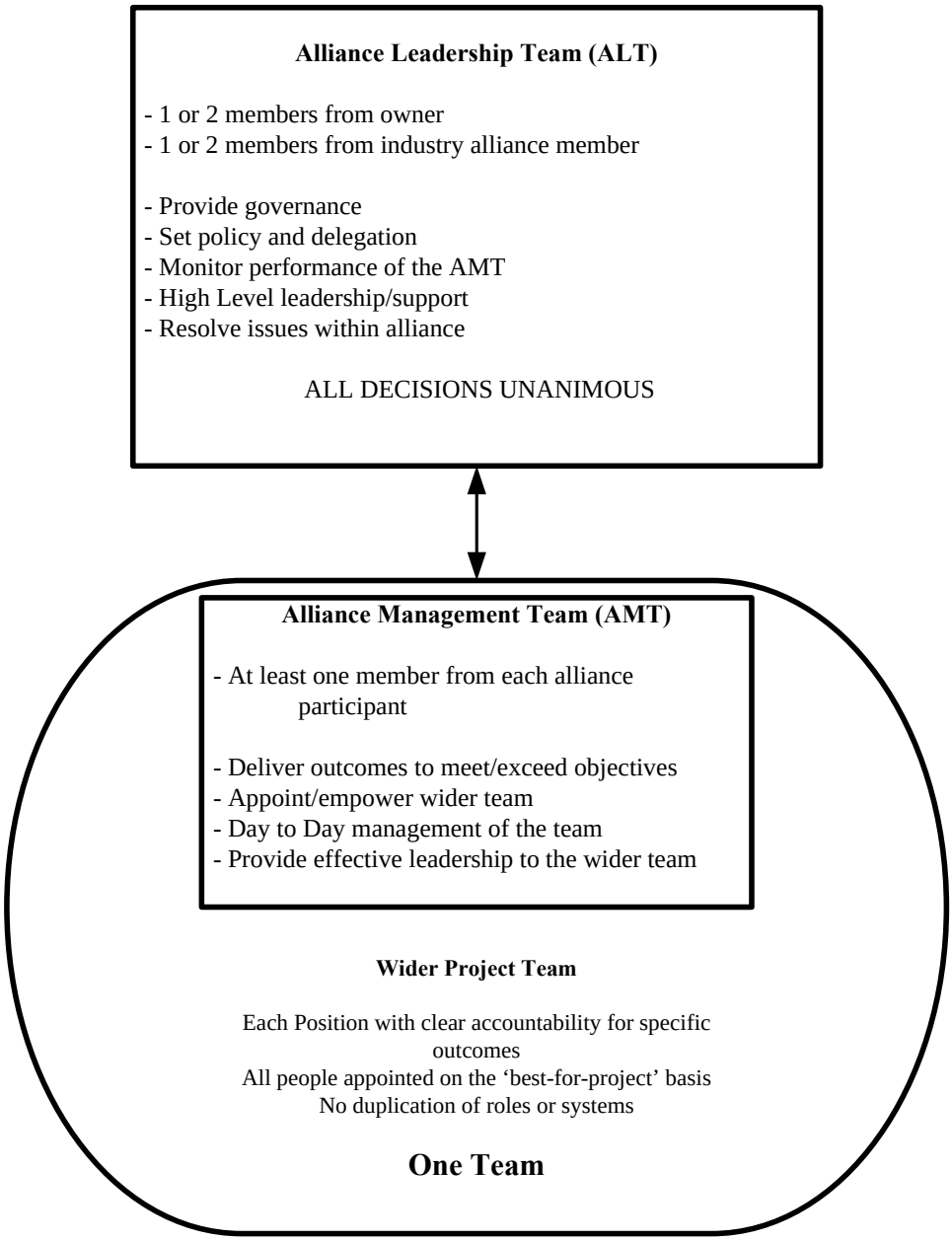


Figure 8 - Project Alliance Structure

Source: Adapted from: State of Victoria, Australia, "Project Alliancing Practitioner's Guide,"…, 12.

The key senior management body is the Alliance Leadership Team (ALT). Although not involved on a day-to-day management of the alliance, this team is charged with the responsibility to provide vision, monitor progress against the targets, and, most importantly, ensure that the resolution of disputes is kept within the alliance. The latter responsibility may require the ALT to make decisions and provide direction on the way ahead regarding any particular dispute.

The body accountable for managing the day-to-day work of the alliance is the Alliance Management Team (AMT). Not only do they manage the dedicated project team, they are also responsible to ensure that support from the wider participants' organizations is sustained.

Once the work conducted under the iPAA is completed, the final off-ramp is the decision with respect to the acceptability of targets. If all parties accept the suitability of the targets, they enter into a PAA. If they do not, they agree to walk away. This is a key aspect of project alliancing as acceptance of entering into the iPAA is based upon the realization that agreement at the PAA stage may not be reached and that all parties will walk away without litigation if that is occurs.[94] The agreed upon prohibition on litigation further reinforces the approach of either win/win or lose/lose. Thus, the underlying philosophy is best described by the Jedi Master Yoda, "Do or do not. There is no try!"[95]

Entering into the PAA is the commencement of the Project Implementation phase. A significant aspect of this phase is the measurement of progress against the defined

[94]State of Victoria, Australia, "Project Alliancing Practitioner's Guide,"…, 84-89. The Guide provides details of the particular requirements of both the iPAA and PAA and the process for determining if the requirements to transition to a full project alliance stage have been met.

[95]"Star Wars – The Empire Strikes Back," Dir. George Lucas, Universal Studios, 21 May 1980.

targets and the ability to have this progress externally audited with reports made to the appropriate level of each participant's organization.

The preceding overview of project alliancing's tenets, procurement phasing, and organization form a baseline for understanding the key issues for Canada. While some potential adaptations to the Canadian context have been noted, the appropriateness of project alliancing for Canadian defence procurement must be ascertained.

## PROJECT ALLIANCING FOR CANADA

> *Fixing procurement will be a top priority. Simpler and streamlined processes will make it easier for businesses to provide products and services to the government and will deliver better results for Canadians. Military procurement in particular is critical: Canada cannot afford to have cumbersome processes delay the purchase and delivery of equipment needed by our men and women in uniform.*
>
> *Speech from the Throne, 19 November 2008.*[96]

Project alliancing is a strategy that has proven itself internationally as an adaptable approach to implementing complex and high-risk projects. It is an approach that, as has been discussed, is best suited for developmental projects or those projects with high risk of change. Further, it is an approach that is being adopted for highly complex, high-risk defence procurements.

In order to determine the value of using project alliancing in Canadian defence procurements, the feasibility, acceptability, suitability, and necessity of doing so will be assessed. For the purposes of this analysis, feasibility will be assessed against the capability of implementing project alliancing in a practicable manner; acceptability will

[96]Governor-General of Canada, "Speech From the Throne – 19 November 2008," http://www.sft-ddt.gc.ca/eng/media.asp?id=1376; Internet; accessed 22 March 2009.

be assessed against the norms of the current procurement framework; suitability will be assessed against the fit of this strategy against the intended purpose and necessity will be based upon a determination of the actual need to adopt this strategy.

The feasibility of project alliancing is best determined by assessing its legality, fit within the current procurement framework, and achievability. In examining the legality, comparisons of similar techniques will be examined in lieu of presenting a formal legal opinion. Although there are no examples of project alliancing being used in Canada, there are a number of examples of other types of relationship contracting. Prime amongst these are Public, Private Partnerships (PPP or P3). PPP have been, and continue to be used, for a number of construction projects. Some current examples are the construction of Highway 104 in Nova Scotia, and the Confederation Bridge linking New Brunswick with Prince Edward Island.[97] Notably, in 2008 the federal government established PPP-Canada Incorporated as its public-private partnership office tasked with working with the public and private sectors towards encouraging the further development of Canada's PPP market.[98]

Further, project alliancing is an accepted contracting method in the United Kingdom[99] with whom Canada shares the same precepts of common law and contracting law. Lastly, project alliancing is widely used in Australia, which shares the same legal precepts, and is being applied to defence procurement projects such as the ANZAC

[97]Canadian Council for Public-Private Partnerships, "The Canadian Council for Public-Private Partnerships," http://www.pppcouncil.ca/; Internet; accessed 22 March 2009.

[98]Canada, Canada Gazette, Vol. 142, No. 26 — June 28, 2008, http://canadagazette.gc.ca/partI/2008/20080628/html/notice-e.html; Internet; accessed 15 February 2009.

[99]United Kingdom, Office of Government Commerce, "The Integrated Project Team - Teamworking and Partnering,"…, 5.

frigate in-service support and the Air Warfare Destroyer build contracts. Thus, the legal foundations for the application of project alliancing appear to be firmly in place in Canada. In order to confirm this assessment, a legal opinion would need to be sought from the Department of Justice.

The two key documents that describe the Canadian government's procurement framework are the Treasury Board Contracting Policy and the subordinate Public Works and Government Services Canada Supply Manual. Both of these documents are silent with respect to specific reference to project alliancing. Notwithstanding, the PWGSC Supply Manual does allow for a considerable degree of flexibility,

> *The individual requirements of a particular procurement may suggest that a course of action other than one set out in this Manual should be followed. There is also no reasonable way that a manual can set out, for every possible circumstance, what authority is required to deviate from an established policy or procedure.*[100]

The application of this flexibility is approved as part of the Procurement Strategy and is constrained within the five principles guiding PWGSC policies: client service, national objectives, competition, equal treatment, and accountability.[101] Additionally, the government, through the CFDS and numerous public statements, has been clear in its intent to work in a renewed and more collaborative manner with industry.

Thus, project alliancing fits within the stated policy intent of the government and the current framework is flexible enough to allow for project alliancing. However, for it to be implemented it is likely that a minor amendment to the Supply Manual may be prudent. This prudence is particularly import because of the prime directives for

[100]Public Works and Government Services Canada, "Supply Manual,"…, Section 1.

[101]Public Works and Government Services Canada, "Supply Manual,"…, Section 1.

government policy of fairness, openness, and transparency that are embodied in the Accountability Act.[102] To meet these requirements (particularly those of openness and transparency), it is best to document the needed rule set for project alliancing. Since project alliancing is consistent with the policy statements of the government, these amendments are achievable. Hence, project alliancing can meet the three tests for feasibility (legality, consistency with the current procurement framework, and achievability) without needing major changes to existing laws or policy frameworks.

The acceptability of project alliancing is essentially a test of its application within the government's procurement framework. From a policy perspective, the most important tenets to be met are:

a. Can project alliancing be conducted in an open fashion?

b. Can project alliancing be conducted in a fair fashion?

c. Can project alliancing be conducted in a transparent fashion?

d. Can project alliancing be conducted within clear accountabilities?

e. Can project alliancing be implemented without major institutional change? and

f. Can project alliancing be conducted within the government's risk management framework?

[102]Treasury Board of Canada Secretariat, "Guide for the Development of Results-based Management and Accountability Frameworks," http://www.tbs-sct.gc.ca/eval/pubs/RMAF-CGRR/rmafcgrr05_e.asp; Internet; accessed 16 February 2009. Accountability is defined as, "The obligation to demonstrate and take responsibility for performance in light of agreed expectations. There is a difference between responsibility and accountability - responsibility is the obligation to act whereas accountability is the obligation to answer for an action."

Further, the political dimension must be accounted for. It is a tenet of government policy-making that good policy must not only be logically supportable but must be consistent with the political dimensions.

The question of openness is simple to assess – is there an equitable access to the processes associated with project alliancing? There are two dominant dimensions to this question: access to entry in the project alliancing process (this is predominantly a concern for the potential main contractors) and access to project alliancing work throughout a project (this is principally a concern of potential subcontractors). The process to enter into a project alliance is based upon a competitive process akin to what is currently used with Requests for Proposals or contractor down-selects with Statements of Interest and Qualification (SOIQ). These processes are, by stated policy, competitive and accessible to any one who wishes to respond (this is not a guarantee of suitability as that is the purpose of the evaluation of a RFP or SOIQ).[103] From a risk reduction perspective, these processes also allow the means by which unqualified potential vendors are screened out of a competition. An example would be an entry-level company vying to be the lead on a highly complex procurement (the far right of the range shown in Figure 3) for which they have no proven track record or demonstrable similar experience. Given the importance of this screening, it is an element of any procurement strategy that is approved by senior management (often by the project leader based upon the recommendation of the Senior Procurement Advisory Committee). With respect to open access to subcontractors, this

[103]Public Works and Government Services Canada, "Supply Manual,"…, Section 6B. A Statement of Interest and Qualification (SOIQ) can be used to set the criteria (issued through a Letter of Interest) by which potential vendors are assessed as being qualified to participate in a procurement.

can be assured by structuring the key areas of the iPAA phase to include the need for a process for open source selection for subcontractors and ensuring that the terms of reference of the alliance auditor ensure that there is independent assessment of performance on this requirement. This would also ensure that new entries into the market would have an opportunity for smaller portions of a project. This approach could also be complemented by appropriately articulated IRB requirements.

The question of fairness is largely one of procedure. This is best seen through the analogy of the "Reasonable Man" test. Essentially, a process is fair if it is both documented and followed given that it has met the requirement to be legal.[104] The Auditor General of Canada has noted that procedural fairness is largely followed in government but she has also cautioned that,

> *…looking to introduce new platforms into service very quickly – much faster than they have been able to in the past…government regulations require that a fair and open bidding process be followed and that there is transparency in the selection of successful contractors. Following regulations takes time, and Defence cannot skip steps or cut corners to speed up delivery. Senior management from all the departments that are involved in defence acquisitions must be accountable for ensuring the fidelity of the process....*[105]

As project alliancing adheres to the norms of competitiveness and has a well documented set of processes supported by international precedence, there is no additional risk of procedural fairness if project alliancing were to be adopted. This is consistent with the approach taken to date when implementing reforms. DND's Assistant Deputy Minister (Materiel) has affirmed that, "these initiatives are intended to improve the existing

[104]*Black's Law Dictionary – Eight Edition*, ed. Bryan A. Garner (St Paul: Thomson West, 2004), 1295.

[105]House of Commons, Standing Committee on National Defence, *Report on Procurement and Associated Processes*,…, 8.

procurement system, they are not meant, in any way, to circumvent the rules and processes put in place by Treasury Board and Parliament."[106]

However, it is also important to realize that processes associated with project alliancing must not only be fair but that they are seen to be fair. Thus, there is a need for transparency of the associated processes. In practical terms, no procurement is completely transparent in all details. The process of bidding requires bidders to disclose sensitive internal information of a competitive and proprietary nature. This information is a critical aspect of the bid evaluated by the government and, although the results of an evaluation can be disclosed publicly, the proprietary details cannot be released. This is not an intractable problem but it does require an indirect solution. Currently major procurements can be subject to fairness monitoring wherein PWGSC's Office of the Chief Risk Officer engages an independent fairness monitor who is responsible to PWGSC's Deputy Minister for the procedural fairness of any procurement during the pre-contracting and contracting phases.[107] Acknowledging that there cannot be complete transparency in all of the details of a procurement, transparency can be achieved through a fairness monitor attesting that any procurement process has been conducted in an open and fair manner. As well, the alliance construct encourages the use of an external alliance auditor. The alliance auditor is responsible to conduct audits of all payments to

[106]Auditor General of Canada as quoted in House of Commons, Standing Committee on National Defence, *Report on Procurement and Associated Processes,…*, 2.

[107]Public Works and Government Services Canada, "Fairness Monitor Program," http://www.tpsgc-pwgsc.gc.ca/se-fm/index-eng.html; Internet; accessed 22 March 2009. The purpose of this program is to, "provide [PWGSC] management, client departments, government suppliers, Parliament and Canadians with independent assurance that PWGSC's activities are conducted in a fair, open and transparent manner." In practice the execution of this program is aimed at, "Independent third-party fairness monitors observ[ing] all or part of a departmental activity. Based on their observations, they provide an impartial opinion on the fairness of the monitored activity. The program helps PWGSC protect the interests of its clients, and Canadian taxpayers by identifying and resolving fairness issues as they arise. Dealing with any issues early makes the process fairer, and avoids possible costly after-the-fact resolutions."

ensure they meet normal standards of probity and are in accordance with the alliance agreement.[108] If properly structured, the reporting mechanisms for the alliance auditor can enhance transparency to the government, contractors and, ultimately, the public.[109]

Accountability is increasingly demanded in public transactions and this trend has been captured in government's Accountability Act. The processes and organization of a project alliance are clearly documented. This documentation includes the role of senior management (for procurement this includes the chain of command of the project manager in DND, contract manager in PWGSC, and the industrial benefits manager in IC). In this respect, project alliancing addresses one of the persistent weaknesses of the government's procurement process identified by the Auditor General – establishing both strong project management roles and accountabilities augmented by suitable management oversight.[110]

A further aspect of acceptability that must be considered is the degree of change required to implement project alliancing. Pragmatically, a policy change that would require even a modest level of organizational change would be subject to significant scrutiny. Additionally, a change that is tied to only one possible organizational structure would likely be seen as highly inflexible. The governance structure for project alliancing allows for flexibility with respect to the government's involvement at all levels. The existing government approval and oversight mechanisms are external to the alliance leadership and management teams and thus can remain as they are today. Further, the

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[108]State of Victoria, Australia, "Project Alliancing Practitioner's Guide,"…, 42.

[109]Jim Ross, "Introduction to Project Alliancing (April 2003 Update at the Alliance Contracting Conference Sydney),"…, 3;

[110]Office of the Auditor General, "1998 April Report of the Auditor General of Canada - Chapter 4 - National Defence - Buying Major Capital Equipment," http://www.oag-bvg.gc.ca/internet/English/parl_oag_199804_04_e_9310.html#0.2.2Z141Z1.RL0RBG.EYQPRE.W4; Internet; accessed 22 March 2009.

roles of the central agencies would not change. Since the government processes for approval and oversight are maintained, project alliancing would not be an impediment to any restructuring of the responsibilities for defence procurement (e.g. adopting a model based upon Alan William's concept of Defence Procurement Canada) should the Government wish to do so some time in the future.

Ultimately, the government would have to select who is its lead at each level of the alliance implementation and organization. One possibility might be to fully empower Canada's project manager by assigning them to the ALT and ensuring that senior members of the AMT (subject to the "best for project" criteria) be provided by the government. This approach would give the project manager considerable influence but lacks the necessary governmental oversight that is the responsibility of the Project Leader. Thus a more preferable model, and one that is consistent with the Treasury Board Contracting Policy, would be to have the Project Leader (PL) as Canada's representative to the Alliance Leadership Team and Canada's Project Manager (PM) as Canada's representative to the Alliance Management Team.[111] This would require both a commitment to empowerment of the PM and assurances that the PL has the necessary oversight to ensure that the government procurement principles and the approved Procurement Strategy are adhered to.

The final procedural aspect of acceptability relates to the government's risk management policies and practices respecting procurement. Project alliancing is based upon risk identification and resolution. It is an approach that is in line with the risk management policy of the government. It is, however, at odds with the general practice

of transferring risk to industry as it adopts an approach of risk sharing. As existing policy allows for this approach to risk mitigation and the government is leading initiatives for defence procurement reform and examining PPP government-wide, there is the opportunity to pursue project alliancing. This by no means diminishes the effort required to manage change in the bureaucracy of government. Nevertheless, the foundation to adopt the risk strategies for project alliancing exists and the bureaucracy would be responsive to a demonstrated political will to proceed.

The litmus test for political acceptability is measured by the risk to the governing party. Although project alliancing is both feasible and procedurally acceptable, its susceptibility to challenge must be considered. Project alliancing follows the precepts of openness, fairness, and transparency and it does so within existing policy framework of the government. The areas where it could be challenged politically are the degree of competitiveness and the determination of best value. The process for entering into a project alliance is meant to be competitive. Where it differs from current practice is that the source selection occurs during the project definition phase. This leaves a reasonably long period where there are opportunities for critics to engage the government directly or indirectly. Likewise, the initial source selection is not based upon cost. Although a fundamental goal of project alliancing is to ensure that costs and risks are understood before entering into a final contract, there would be, in all likelihood, complaints about selecting a contractor before determining if best value has been achieved. The Treasury Board Procurement Policy recognizes that determining best value is only straightforward for the simplest of procurements - those procurements with clear requirements and many established vendors – that can be assessed for best value largely on cost. For more

complex procurements, Treasury Board recognizes that they "call for greater judgement and it is unwise to focus simply on price or lowest initial cost."[112] Further, the process for determining best value is continuous,

> *The analysis necessary to achieve best value should not be confined to the actual procurement process; it should begin in the planning and appraisal of alternatives and continue through the definition of requirements which would include assessment and award criteria, evaluation of sources, selection of contractor, preparation, negotiation, execution and award of contract, contract administration and post-contract evaluation.*[113]

Within the project alliancing process, this continuous approach to best value is built into the selection, interim alliance, and full alliance phases. Additionally, the government and other potential alliance members are safeguarded against committing to a case not meeting best value by the off-ramp before the PAA is negotiated and signed. Each of these areas is addressed in the process of establishing a project alliance but would require a fair degree of education of both politicians and the government bureaucracy in order to be able to deliver effectively and proactively the key messages of the benefits of a project alliance. A considerable mitigation of this risk is available through establishing close liaison with other governments, particularly the Australian's, in order to learn from their lessons. Once the government understands the benefits, it can deliver the key messages with clarity and effectiveness. Hence, although there are potential points upon which this procurement strategy can be attacked, project alliancing has no significant political liabilities, and it addresses well-known risks based on past and existing procurements.[114]

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[112]Treasury Board, "Contracting Policy."

[113]*Ibid.*

[114]Although it is beyond the scope of this paper, developing a Defence Industrial Strategy would assist in providing a clear vision for the way-ahead and thus ease the burden on messaging. See Stone, James C. Stone, "The Need for a Defence Industrial policy." *International Journal*, Spring 2008, 17.

Having established that project alliancing is both feasible and acceptable in the Canadian context of defence procurement, the suitability needs to be determined. Suitability is the measure of "goodness of fit" of this strategy against the intents of defence procurement. It can easily be seen that project alliancing is a good fit for highly complex procurements. First, project alliancing is aimed at remediation of the significant risks due to moral hazard that can, and often do, impact the performance, cost or delivery schedule of complex projects. Second, it preserves the basic principles of defence procurement. Third, it is a strategy that is meant to adapt to change (whether in an operating environment or in other unforeseen circumstances). Finally, it is a strategy that reflects how governments (and particular diplomats and militaries) historically deal with complex situations. Alliances in general are not a new phenomenon. For example, Canada is a key member of NATO, which is an organization that is aimed at risk mitigation through collective defence. In this regard, adopting project alliancing can be seen as simply applying tried and true strategies that are applied successfully at the even more challenging geo-political level. Adopting project alliancing would expand the available options for defence procurement by introducing a principal-based approach that is suitable for complex, high-risk procurements, while allowing for traditional rules-based approaches for non-complex procurements.

Figure 9 is a functional representation of a suitable organizational approach for implementing project alliancing in Canada. It differs mainly in the level of detail from the generic model presented in the previous section. The additional features include the addition of an alliance auditor with primary responsibility to the government (including the potential for reporting to the Auditor General) and industry's alliance participants.

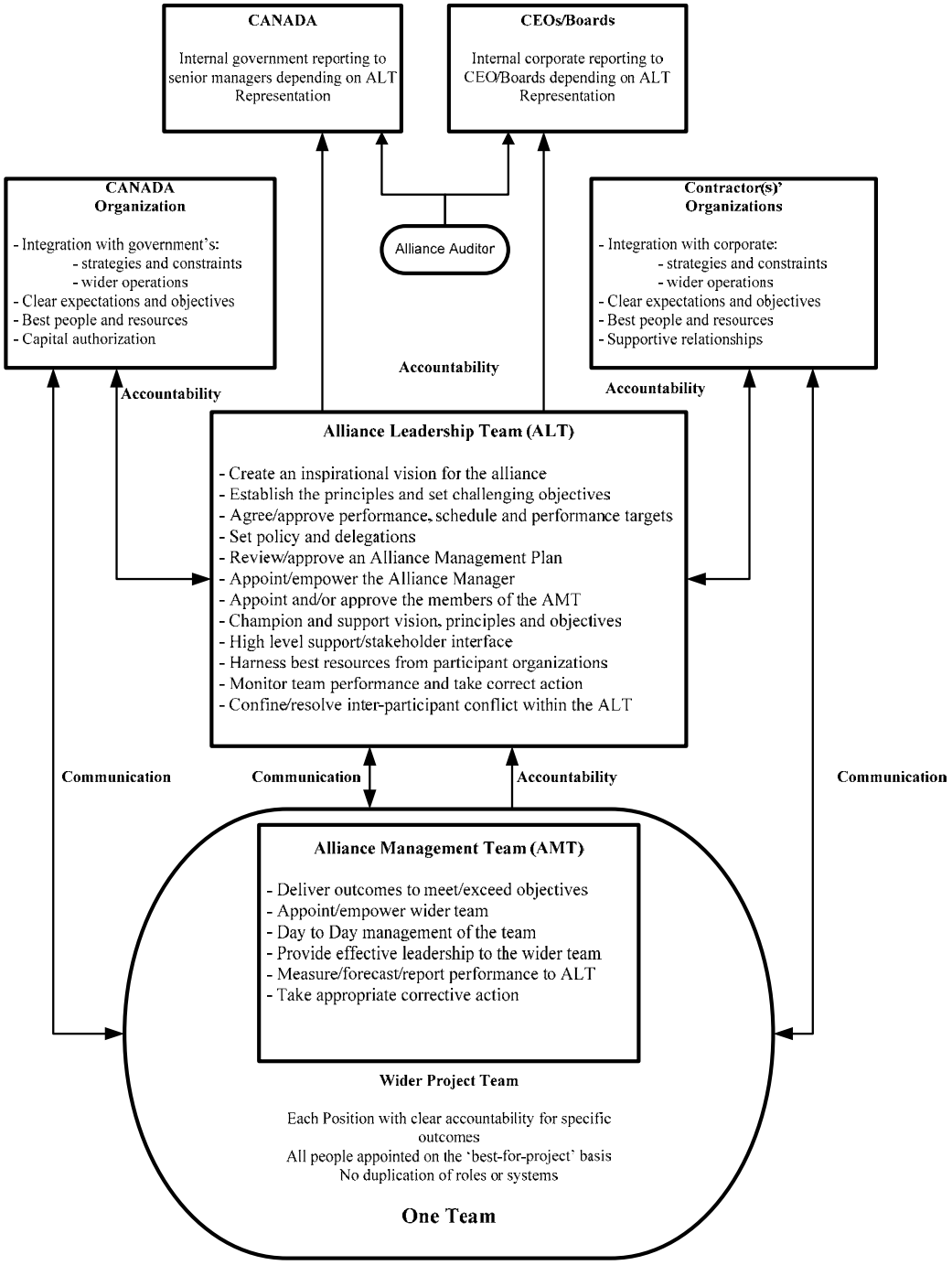


Figure 9 - Project Alliance Governance and Responsibilities

Source: Adapted from: State of Victoria, Australia, "Project Alliancing Practitioner's Guide,"…, 12.

It is envisaged that the audit reporting mechanism would ensure that formal reports would be to senior management (at a level higher than the ALT membership) in these organizations. Additionally, the senior management of both the government and industry were added to demonstrate the level of required oversight. Finally, the organizations of both the government and industry partners that support the alliance, but that would be external to the IPT, have been indicated. It is noteworthy that both the government and industry have separate oversight mechanisms for ensuring project control but currently there is little integration at the management and senior executive process through joint processes.[115] Thus, there are currently no analogous bodies to the Alliance Management and Leadership teams in Canadian defence procurement.

Change for change sake is not a method for success. Project alliancing is feasible, acceptable, and suitable but is there an imperative to invest the effort required to implement it? Figure 10 builds upon the concepts described in Figure 3. It portrays the projects previously discussed in this paper, as well as several ongoing projects against the suitability of different procurement strategies. Circled on the right side of this diagram are a group of highly complex procurements that, for a variety of reasons, cannot be procured off-of-the-shelf. This is not an exhaustive examination of all projects. Rather it is a demonstration that there are existing announced projects that fall within the complex domain.

[115]Treasury Board, "Contracting Policy." The Contracting Policy states that, "It is the responsibility of departments and agencies to ensure that adequate control frameworks for due diligence and effective stewardship of public funds are in place and working. Treasury Board Secretariat works with departments and agencies to address management issues and compliance with Contracting Policies identified through its ongoing relationships with departments, management reviews, evaluations, internal audits and transactions."

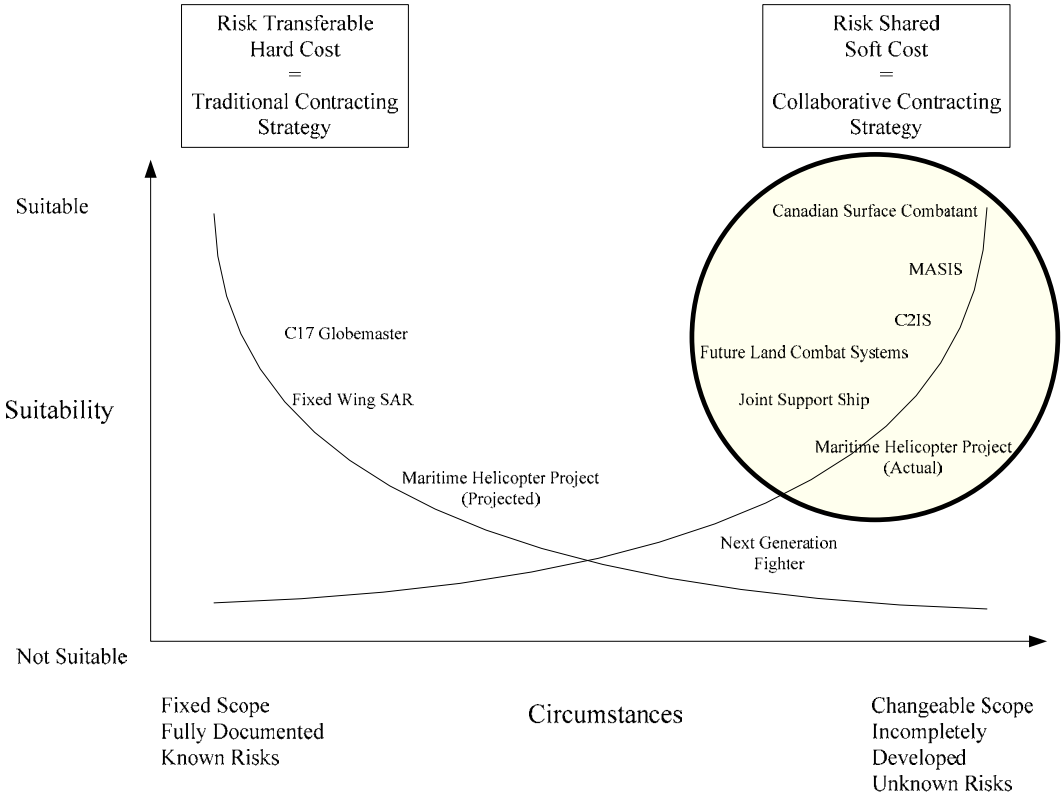


Figure 10 – Capability Suitability

One noteworthy project, assessed as being only highly complicated as opposed to highly complex, is the Next Generation Fighter project. The development and procurement of advanced fighter capabilities is indeed a complex endeavour. If Canada were to pursue this alone, then this procurement would certainly meet the requirements of a complex procurement. However, Canada's approach to date has been to participate in the American-led Joint Strike Fighter Program. Although the government has not committed to this program as the source of the Next Generation Fighter, it is assessed as improbable that Canada would change course and decide to build its own fighter contract. Thus, Canada is reducing its risk exposure by positioning itself to buy an off-of-the-shelf system (whether it is the Joint Strike Fighter or another available aircraft like the

Eurofighter), a strategy that was espoused by Dan Ross in his testimony as ADM (MAT) to the Parliamentary Standing Committee on National Defence.[116] From the perspective of alliancing, Canada may enter into a partnership for the Next Generation Fighter but, due to the desire to buy off-of-the-shelf, there is no imperative to adopt project alliancing unless it is driven by the lead developing nation.

The case of the Next Generation Fighter is instructive because it shows that there is a boundary to where project alliancing is beneficial. Those procurements in Figure 10 that are circled exemplify the types of procurement where project alliancing would most likely be beneficial. The first example is the Maritime Helicopter Project. Although this project is in contract, a number of deficiencies in the execution of the project have been discussed. Due to the underlying theme of moral hazard, as well as risk associated with developmental work, project alliancing would have arguably been a better contracting strategy for this procurement. This is a result of the level of development work that this project has needed that has been exposed over time due to the lack of maturity of the aircraft and associated systems.

The next group of procurements are MASIS and C2IS. MASIS is the Materiel Acquisition and Support Information System that is an example of a highly complex Enterprise Resource Program (ERP). C2IS (Command and Control Information Systems) is the term used to represent the collectively large number of command and control classified network initiatives required to enable the capabilities explicitly defined in the CFDS. As a group, these procurements represent complex software applications that are being introduced to improve the administrative efficiency of DND and to ensure

[116]House of Commons, Standing Committee on National Defence, *Report on Procurement and Associated Processes,…*, 2.

the success of the transformation of the CF. By their very nature, they require considerable user engagement to ensure the projects deliver successfully as well as considerable and complementary user discipline to ensure requirements are soundly managed and thus provide a stable baseline against which to deliver. Although the core systems are available to a large extent off-of-the-shelf, there remains a requirement for considerable tailoring to ensure the procured systems are suited for the intended purpose.[117] Thus, a procurement strategy based upon traditional methodology will be stressed to adapt to changing circumstances. This has been partially mitigated by the MASIS project adopting a phased approach. However, this has in turn led to the realization of a greater risk due to slipped schedule as phases have needed separate approvals for contracting and expenditure approvals.[118] Project alliancing, which can include a key role for the requirements community, has the necessary adaptability to address this shortcoming in current contracting schema.

The last group of procurements include new warships for the navy and the Future Land Combat Systems for the army. Shipbuilding, and particularly building warships, is extraordinarily complex. The ships themselves are complex, the procurement strategies bring complexities (e.g. build in Canada) and the politics of regional distribution of work can be challenging. Notwithstanding the current trend to increase industry engagement, it

[117]By example, MASIS is based upon core software delivered by SAP. The key challenge for the MASIS project that was evidenced during the roll-out to the Navy is the effort required to adapt both MASIS and the institutional process so that they can be mutually integrated. This requires a considerable engagement from the user community that must be controlled by the core project team (project management office and the contractors.)

[118]Although the protracted length of this project has more than one cause, the approval process for the different phases has led to a significant portion of the project delay. See the 2007-2008 DND Report of Plans and Priorities for a recent synopsis of the schedule for this project. Department of National Defence, "Report of Plans and Priorities – 2007-2008," http://www.tbs-sct.gc.ca/rpp/0708/nd-dn/nd-dn05-eng.asp#_Toc160500604; Internet; accessed 22 March 2009.

is the experience of the author and other senior procurement managers that this engagement has not yet evidenced itself in truly open and expansive dialogue.[119] Likewise, the requirements of the Future Land Combat Systems may be met through a single set of contracts or through a series of contracts. While breaking the overall procurement into smaller chunks may appear attractive, the recent challenges of the AURORA Incremental Modernization (AIMP) project and the ongoing challenges of the HALIFAX Class Modernization (HCM) programme[120] give evidence to the complexities and risks of doing so.[121] In fact, these very risks were the driving factor of combining the modernization procurements for new or updated Command and Control Systems, Radars, and other combat systems into the single HCM/FELEX Combat System Integration procurement. It was recognized part way through the project definition that time was the key enemy for HCM/FELEX and that this strategem was the best available risk mitigation.

Meeting the operational objectives of the CFDS in a timely manner is one compelling argument that supports project alliancing for complex procurements. Meeting the financial constraints described in the Risk section of this paper is another.

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[119]As the Deputy Project Manager for the HALIFAX Class Modernization/Frigate Life Extension project, the author was responsible for developing the procurement strategy and directing the contractor selection process for the $1.5B Combat System Integration Design and Build plus In-Service Support contracts. This included a 14 month long industry engagement that, although viewed as a success, did not deal with all business issues as is evidenced by the previously discussed withdrawal of General Dynamics from the competition.

[120]The HCM programme is the overall coordinating structure for all activities (including but not limited to the HCM/FELEX Project) associated with modernizing the 12 HALIFAX Class frigates.

[121]AIMP is a long-standing project that has delivered incremental capability to growth to the Aurora. In 2007, the government (after a pause to re-assess the project's viability) continue the modernization of 10 of the aircraft with an expected life of 2020. Department of National Defence, "The Future of the CP-140 Aurora," http://news.gc.ca/web/article-eng.do?crtr.sj1D=&mthd=advSrch&crtr.mnthndVl=3&nid=369439&crtr.dpt1D=&crtr.tp1D=&crtr.lc1D=&crtr.yrStrtVl=2006&crtr.kw=aurora%2Bmodernization&crtr.dyStrtVl=2&crtr.aud1D=&crtr.mnthStrtVl=2&crtr.yrndVl=2009&crtr.dyndVl=22; Internet; accessed 22 March 2009.

The funds for the CFDS are limited and the trend for individual procurements to be over budget remains a common problem. Internal governmental process improvements can address some of the up-front schedule creep but they are less likely to address the cost impacts. Recognizing that there is room for improvement regarding the cost of terms and conditions of contracting, these are largely (with the notable exception of exchange rate fluctuations) up-front costs. The process for establishing true costs through the iPAA phase of a project alliance allows for an assessment of true cost against available resources before a final agreement contract is put in place. The benefits of this are clear; the government will be able to better assess the cost impacts if the discovered costs are greater than the anticipated costs and the iPAA process will mitigate against any tendency to 'fudge' the discovered cost because of this.

By addressing cost and schedule concerns, project alliancing can better protect the *raison d'être* of the process – delivering operational capability. Not only are the core requirements better protected from the natural tendency to compromise them for the sake of mitigating cost increases or schedule slips, the project alliancing approach allows for a mechanism to manage change in a win-win setting. One needs to be cautious in interpreting this feature of project alliancing. It is not meant as means of avoiding requirements discipline. It is meant as a means for the government to benefit from shared gain, a gain that can be garnered through increased capability, decreased cost, or shortened schedule.

Project alliancing addresses significant aspects of the cost, schedule, and performance risks inherent in those complex procurements needed to support the CFDS.

In doing so, to a significant degree project alliancing is a strategy that fills a void in more traditional contracting strategies currently used by the government of Canada.

## CONCLUSION

The *Canada First Defence Strategy* is *de facto* a contract between the Government of Canada and the Department of National Defence that provides both strategic guidance for the Canadian Forces and the supporting major equipment procurements. The Government has clearly articulated the extent of its "ambitions" in terms of capability, supporting systems and costs. Notwithstanding that the *Canada First Defence Strategy* will need to adapt to reflect the evolving domestic and global environment, the articulation of the government's limits on procurement appetite is a critical strategic planning requirement for the Canadian Forces and the Department of National Defence.

Amongst the acquisitions required to implement the CFDS is a group of highly complex, high-risk procurements that must be delivered within limited funding and demanding schedules. The recent challenges in re-equipping the Canadian Forces are indicative of the risk of procurement failure and subsequent impacts on cost, schedule, and quite likely performance. The principal weaknesses of the traditional contracting methodology of maximizing risk transfer to industry and adversarial dispute resolution are exacerbated by the moral hazard of information uncertainty. These weaknesses can result in a high probability of outright failure or of slipped schedules, cost overruns, or sacrificed capability.

In order to deliver the capabilities of the CFDS, government has recognized the imperative of developing a better relationship with industry. This relationship must be

mutually beneficial if it is to be enduring. One way of ensuring this benefit is to adapt procurement strategies so that the government's requirements for cost, schedule, and performance are met, while allowing industry to profit appropriately and develop long-term capabilities. An approach that offers this benefit for complex procurements would be a win-win strategy for the government and industry.

Project alliancing, an advanced form of relationship contracting that builds upon risk mitigation through sharing risks and contracting for behaviour, is one such methodology that Canadians can exploit to minimize the risk to delivering the highly complex procurements that form the cornerstone of the *Canada First Defence Strategy*. It is a procurement strategy that is both legally and practically feasible, it is acceptable within established policy frameworks and procurement cultures, it is suitable for the demanding and risky business of defence procurement, and it meets the necessity of delivering key components of the *Canada First Defence Strategy*.

While project alliancing offers many benefits, there are significant challenges that need to be addressed. In order to adopt this strategy, a thorough review of both the Treasury Board Procurement Policy and Public Works and Government Services Canada's Supply Manual would be required. Further, education of key decision makers and acquisition and technical experts would have to be developed and delivered. These are relatively straightforward tasks to accomplish.

More importantly, industry would have to be engaged to ensure that the proposed mutual benefits are achievable. This endeavour would be more complicated due to the number of contractors that form part of the Canadian defence industrial base and their varied experience with different contracting schemes, as well as their range of acceptance

of innovation. It is arguable that any company that can engage fruitfully in this discussion has the potential to be a successful alliance partner. In this regard, the government can draw on its considerable experience in negotiating the conditions of and working within alliances.

Project alliancing is consistent with the core procurement principles of the Canadian government. While the competitive phase is limited to entering into the iPAA, methodologies to ensure that the principles of the IRB policies can easily be built into the requirements to be met.

Project alliancing is a methodology that Canada can adopt to ensure the highly complex and risky procurement elements of the *Canada First Defence Strategy* are delivered effectively and efficiently. It is feasible, acceptable, suitable, and most importantly necessary. The challenges associated with adopting this strategy are manageable while the benefits have been realized in industry and by other governments. The need to reform procurement has been identified in the November 2008 Speech from the Throne and the opportunity to focus the reform is provided by the *Canada First Defence Strategy*. Therefore, Canada should act to address the challenges and implement project alliancing in a timely yet prudent fashion for those procurements that would benefit from this approach – those that are highly complex and highly risky, have many intractable risks, and thus exhibit the behaviour of a wicked problem. To move project alliancing forward expeditiously, key defence procurements that would benefit from it should be identified and the necessary procurement strategies should be put in place enabled by both government support and direction.

Much as the Canada First Defence Strategy is *de facto* a contract between the Government of Canada and the Department of National Defence, project alliancing is a viable and necessary form of contracting between the Government of Canada and Canadian industry. To paraphrase Prime Minister Mackenzie King, Canada should adopt the procurement strategy of "Project Alliancing if necessary, but not necessarily Project Alliancing."[122]

*Certainty of Death. Small Chance of Success.*
*What are we waiting for?*
*Gimli as quoted from the Lord of the Rings*[123]

[122]Prime Minister Mackenzie King as quoted in Canadian Broadcasting Corporation, "Mackenzie King: Public Life, Private Man," http://archives.cbc.ca/politics/prime_ministers/topics/1276-7239/; Internet; accessed 22 March 2009.
[123]"Lord of the Rings: Return of the King," Dir. Peter Jackson. New Line Cinema, 17 December 2003.

Appendix 1 – Glossary of Terms

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|---|---|
| ADM (Mat) | Assistant Deputy Minister – Materiel |
| AIMP | Aurora Incremental Modernization Project |
| ALT | Alliance Leadership Team |
| AMT | Alliance Management Team |
| ANZAC | Australian and New Zealand Army Corps |
| AQAP | Allied Quality Assurance Procedure |
| BP | British Petroleum |
| C2IS | Command and Control Information System |
| CADSI | Canadian Association of Defence and Security Industries |
| CDIB | Canadian Defence Industrial Base |
| CEO | Chief Executive Officer |
| CF | Canadian Forces |
| CFDS | *Canada First Defence Strategy* |
| DAOD | Defence Administrative Orders and Directives |
| DND | Department of National Defence |
| ECS | Environmental Chiefs of Staff |
| ERP | Enterprise Resource Program |
| GAO | General Accounting Office |
| HCM | HALIFAX Class Modernization |
| HCM/FELEX | HALIFAX Class Modernization/Frigate Life Extension |
| IC | Industry Canada |
| iPAA | interim Project Alliance Agreement |
| IPT | Integrated Project Team |
| IRB | Industrial and Regional Benefits |
| ISO | International Standards Organization |
| MASIS | Materiel Acquisition and Support Information System |
| MCP | Major Crown Project |
| MND | Minister of National Defence |
| NATO | North Atlantic Treaty Organization |
| O&M | Operations and Maintenance |
| PAA | Project Alliance Agreement |
| PL | Project Leader |
| PM | Project Manager |
| PPP (P3) | Public-Private Partnership |
| PWGSC | Public Works and Government Services Canada |
| RFP | Request for Proposal |
| SOIQ | Statement of Interest and Qualification |
| SOR | Statement of Requirement |
| SPAC | Senior Project Advisory Committee |
| TB | Treasury Board |
| TOC | Target Outrun Cost |
| UK | United Kingdom |
| US | United States of America |

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