In accordance with the CADSI Policy Priorities for 2011, the attached position paper has been developed to deal with the specific priority:

> ***Assign procurement and contract risk to the party best suited to manage the risk*** *The current risk framework for defence procurements is not working. Industry is expected to carry risk that is more properly held by the government. The consequences to taxpayers and the government of the current imbalance include: the best suppliers may not bid; they may not be encouraged to bid the best solution; and/or they will price into their bids a premium for the undue risk they are being asked to bear.*

The paper has been developed based on the extensive experience of the authors as well as discussions with both government and industry experts.

The paper was considered by the CADSI Board on June 8th 2011. Board comments have now been incorporated.

An Improved Approach for Managing Risk
In Defence Procurement

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for:

The Canadian Association of Defence and Security Industries (CADSI)

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I INTRODUCTION AND PURPOSE

CADSI has been involved in an ongoing discussion with the three federal government departments with responsibilities for defence procurement (DND, PWGSC, Industry Canada) for a number of years. A central objective in these discussions has been to convince the government to develop and implement an industrial strategy that supports the defence, sovereignty and prosperity of Canada, and to implement fundamental improvements to the defence procurement process.

Following a cross-Canada consulting process with industry, in December, 2009 CADSI released a comprehensive report on these subjects (Annex A provides the main report) and subsequently met with senior officials and Ministers from DND, PWGSC and IC. Ministers and senior officials have been open to the consideration of new ideas but have asked for specific advice from CADSI on the changes that should be made, and how they should be implemented.

CADSI has embarked on a series of specific studies to refine its policy advice in these areas with the objective of tabling these proposals with Ministers and senior officials in August, 2011. At the same time, the Board of Directors of CADSI has articulated a series of 11 priorities for 2011 that provide overall guidance to these efforts (Annex B).

The purpose of this specific study is to propose a more effective approach for dealing with risk in the federal defence procurement process.

II RISK IN DEFENCE PROCUREMENT

We begin this paper with a brief discussion of risk in defence procurement in Canada that includes two main parts: first, the objectives, risks and process for the procurement of defence equipment; and second, views that have been expressed in the CADSI 2009 Report and in the 2011 consultations with selected industry and government representatives undertaken by the authors on the realities, relationships, trends, and issues that need to be addressed in defence procurement.

A. OBJECTIVES, RISKS AND THE PROCUREMENT PROCESS

1) Objectives

The primary objective of defence procurement is to meet the operational requirements of Canada's military forces given the roles that the forces play, namely to protect the security and sovereignty of Canada, to defend North America and to contribute to international peace and security. The Canada First Defence Strategy sets out these roles along with a high level description of the equipment that will be required over the next 20 years.

The six core missions of the military within Canada, in North America and globally are:

- Conduct daily domestic and continental operations including in the Arctic and through NORAD;

- Support major international events in Canada, like the 2010 Olympics;
- Respond to any major terrorist attack;
- Support civilian authorities during a crisis in Canada such as a natural disaster;
- Lead and/or conduct a major international operation for an extended period; and,
- Deploy forces in response to crises elsewhere in the world for shorter periods.

In order to serve these missions the government committed in CFDS to acquire 16 CH-47F Chinook helicopters, three replenishment ships, 2,300 trucks, up to 100 Leopard 2 tanks and 6-8 Arctic/offshore patrol ships, in addition to procuring four C-17 Globemaster strategic lift aircraft and 17 new C-130J Hercules tactical lift aircraft. The government also committed to replace core fleets including:

- 15 ships to replace existing destroyers and frigates;
- 10 to 12 maritime patrol aircraft;
- 17 fixed wing search and rescue aircraft;
- 65 next-generation fighter aircraft; and,
- A fleet of land combat vehicles and systems.

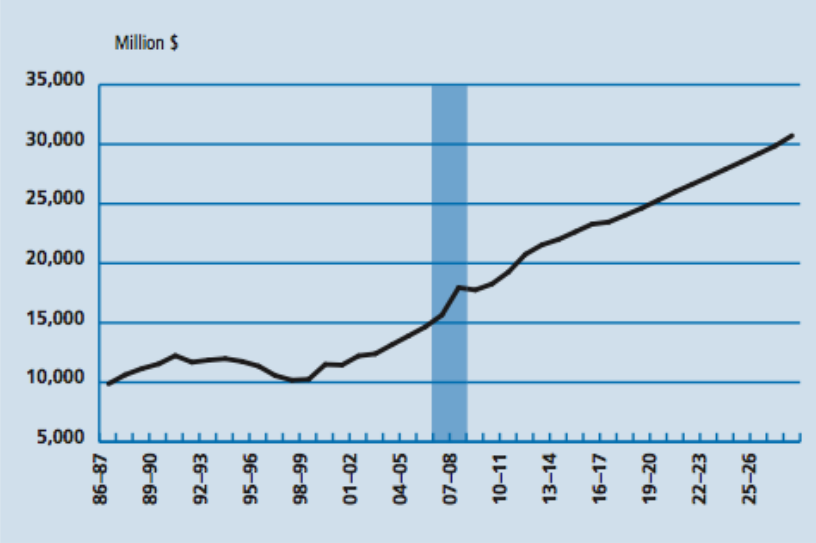
Within the spending levels depicted in the two Defence Program spending charts on the next page $240 billion was initially earmarked for investment in military equipment over a 20-year time frame. The current efforts within government to reduce expenditures in order to eliminate the deficit within four years will have an impact on the ability of DND to fund all of these requirements in the originally anticipated time frame. This will increase pressure to procure military requirements in a cost effective way since the budget allocated for these purchases is shrinking. The varied roles of the Canadian military mean that its operational equipments and fleets will often have to support a variety of mission profiles across a range of operating conditions and climates.

A second objective of defence procurement is to ensure that the purchase of defence equipment provides an opportunity for the Canadian defence industry to develop its competitiveness and capacities to service Canadian and international defence needs. When the government announced its Canada First Defence Strategy (CFDS) it clearly set out as one thrust the objective of increasing the contribution of the Canadian defence, aerospace and security industry to Canada's evolving defence and security requirements.

The government has clearly stated that its commitment to a schedule of defence and security expenditures over the next 20 years will present an opportunity for Canadian companies to build global excellence and to leverage Canada's industrial competitive advantage. Knowing these overall plans does help industry somewhat to prepare for future acquisitions, but more information early-on is required on timing and the nature of requirements for Canadian industry to pre-position itself under the promised renewed relationship government wants with industry.

Chart 1

Defence program FYs 1986–87 to 2027–28



Note: Figures for years up to and including 2007-08 reflect final adjustments for items such as funding for incremental costs of deployed operations. Although the Government has committed to continue providing this funding, future adjustments in this context are not reflected in the graph. These adjustments will not affect the baseline for the long term planning figures. Consistent with established practice under the Expenditure Management System, the forecast annual planning figures presented here will be re-confirmed annually through the Estimates and Budget processes.

Chart 2

Defence Average Growth

(1986–87 to 2027–28) Selected Periods

PERIOD	NOMINAL GROWTH	REAL GROWTH
1986–87 to 2005–06	2.2%	–0.4%
2006–07 to 2007–08*	10.8%	8.5%
2008–09 to 2027–28	2.7%	0.6%

* *Note:* In the top display, the years 2006–07 and 2007–08 are segregated to note that they represent the program "re-set" years upon which the CFDS is subsequently based.

Figures for years up to and including 2007–08 reflect final adjustments for items such as funding for incremental costs of deployed operations. Although the Government has committed to continue providing this funding, future adjustments in this context are not reflected in the graph. These adjustments will not affect the baseline for the long term planning figures.

The government commitment to a new and renewed relationship with the defence and security industry and research and development organizations across the country was updated in Budget 2011 where the Government made the following commitment:

Considerable progress has been achieved in streamlining and improving military procurement processes, including through the National Shipbuilding Procurement Strategy and enhancements to the Industrial and Regional Benefits Policy. The Government is committed to continuing these efforts by developing a procurement strategy, in consultation with industry, to maximize job creation, support Canadian manufacturing capabilities and innovation, and bolster economic growth in Canada.

The two key instruments that the government can use to help Canadian industry position itself for success are the selection of sourcing strategies that recognize and exploit preeminent defence capabilities within Canadian industry, and the strategic use of IRB obligor commitments to leverage Canadian participation in the capital project itself, and to build world class technological strengths in cases when the prime contractor needs to

be a foreign company. Stronger efforts should be made to understand Canadian industrial capabilities and to discuss planned requirements with industry well before a sourcing strategy is selected. The industrial and regional development objectives in the IRB policy have a distinct long-term perspective. This means considering how a sequence of acquisitions over decades can help strengthen and extend Canadian industrial competitiveness in key critical and strategic technologies. In short, how Canada can progress a long-term defence industry development strategy.

A third objective of defence procurement is to ensure that the procurement process adheres to standards of probity and prudence and provides best value to the Crown and the Canadian people. The TBS policy on contracting states that:

The objective of government procurement contracting is to acquire goods and services and to carry out construction in a manner that enhances access, competition and fairness and results in best value or, if appropriate, the optimal balance of overall benefits to the Crown and the Canadian people.

Government contracting shall be conducted in a manner that will:

a. Stand the test of public scrutiny in matters of prudence and probity, facilitate access, encourage competition, and reflect fairness in the spending of public funds;
b. Ensure the pre-eminence of operational requirements;
c. Support long-term industrial and regional development and other appropriate national objectives, including aboriginal economic development;
d. Comply with the government's obligations under the North American Free Trade Agreement, the World Trade Organization - Agreement on Government Procurement and the Agreement on Internal Trade.

Three federal departments share the responsibility for defence procurement – DND, Industry Canada and PWGSC – and respectively, they each in turn are accountable for one of the three objectives discussed above.

A key challenge for government in Canadian defence procurement is to establish an agreed procurement strategy that represents the optimal approach to achieving these three objectives (this challenge is accentuated since the focus of each department is on their one objective, and the lines of sight of each department on a best overall approach are therefore quite different).

The current risk-averse approach to procurement within government is at odds, in many respects, with the above objectives. The current practice of allocating virtually all risk to industry, whether in the form of choosing firm fixed price contracting methods as the default approach (often beyond its practicality and effectiveness), or by incorporating extreme liability payments, liquidated damages and other onerous provisions, have important negative consequences in terms of the Canadian Forces' ability to meet its project objectives. Specifically, the current risk imbalance increases project costs, or limits DND's ability in the end to acquire all of the capability it requires. It also limits the degree of overall competition achieved in procurement, and, as discussed in more detail herein, an excessively 'risk averse' approach actually can increase cost, performance and schedule risk. These practices have been reinforced by an overly

legalistic approach to contracting coupled with what appears to be an excessive fear of CITT challenges (given the government's very high success rate in such cases).

2) Risks

The risks associated with defence procurement can be organized into categories that correspond with these three global objectives:

- Risks associated with technology development, cost and the performance of the finished product in the field;
- Risks associated with meeting the optimal development potential for the Canadian defence industry over time, and providing economic and regional benefits to Canadians; and,
- Risks associated with ensuring the fairness of the procurement process and adherence to international and domestic trade law.

The manner in which these risk categories relate to the procurement process and strategies will be discussed in Section III of this paper where the occurrence of risks will be considered in terms of phases or elements of the procurement process:

- Project Risk
- Procurement Process Risk
- Contractual Risk Imbalance
- Single Point of Industry Accountability Risk (Acquisition and In-Service Support)

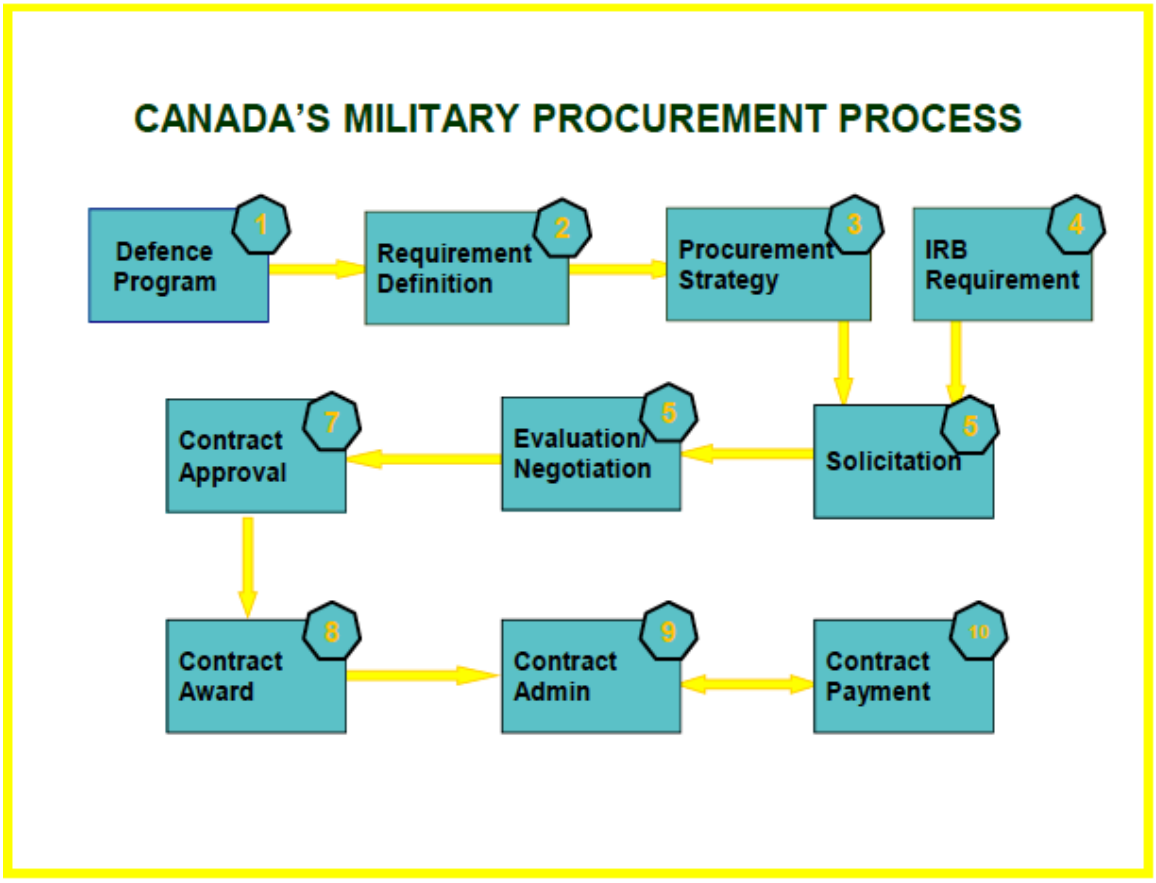
3) Procurement Process

The typical 10-step procurement process for a major crown project is illustrated in the chart on the next page.

The five key aspects of the procurement process that are of most interest to us for the present purpose of discussing risk in military procurement, are:

1. **Defence program** (the Defence program is based on Canada's national security interests and stated domestic and international objectives. Individual initiatives fall within this framework and are further developed pursuant to doctrine and mission statements. Individual projects then proceed to identify more specific capability needs from this baseline and to address current or emerging threats, deficiencies and/or capability gaps);

2. **Requirement definition** (Options analysis leads to identification and focus on a preferred type of solution set. Successive definition activities incrementally narrow down and lead to a fully defined requirement);



3. **Procurement Strategy** (where the sourcing strategy – sole source, competitive, developmental, off-the-shelf, exercise of Canada's trade law national security exception or not - is decided, in large part based on an (imperfect) understanding of Canadian and foreign industry capabilities. This is where decisions are made on elements like directing the acquisition or parts of it to Canadian companies, requiring a single point of accountability for all or part of the project or a consortium approach, and the pricing strategy – cost plus, fixed firm or a phased combination);

4. **IRB requirement** (which is an element of the procurement strategy. More broadly, in addition to IRBs, government considers the socio-economic benefits that a particular solution set might deliver to Canada, together with support of Canada's national objectives and interests);

5. **Contracting and Contract Administration (Steps 5 through 10 in the above chart)** (which can include multiple solicitation stages (LOI, SOIQ, RFP) and the contract negotiation for acquisition and ISS, the establishment of the contract(s) and administration of the contracts over a period of years. A key factor in contracting is how risks will be shared between the crown and the contractor(s), including economic price and foreign exchange adjustments, liabilities, warranties, liquidated damages and excusable delays).

In practice DND carries out its own analysis of steps one through three, and even to the point of deciding on the specific piece of equipment from the existing marketplace that they would like, before the other two departments become involved. This advance work by DND Operations Chiefs leads to a significant degree of churning as the other two departments try to catch up and look after their roles and interests. This increases the risk of time delays and the risk of choosing a sub-optimal solution.

There is a missing or non-explicit element leading into the Procurement Strategy decision stage. In many countries there is an open interaction between the government and industry in discussing how the requirements can be defined, in understanding what exists now in the marketplace, and what can be developed (at various performance and risk levels over various timelines). This industry input can be crucial in helping government identify an optimal solution and reduce attendant risk. Yet in Canada, most of the government's military requirements are developed in-house with little industry collaboration. There are encouraging signs like the ACCORD project and the SSTRM process, but generally Canada lags in undertaking this crucial early consultation phase, and this increases the risk of not achieving Canadian industrial and economic opportunities, the risk of necessary requirement definition changes later in the process, the risk of choosing sub-optimal equipment, and the risk of later litigation and CITT challenges. When early industry consultation mechanism are designed it is important to ensure that participating companies will not later be disqualified from bidding on the requirement that is finalized based in part on the consultations.

B) ISSUES, CONCERNS AND OPPORTUNITIES IN DEFENCE PROCUREMENT

The CADSI report of 2009 documented a range of industry concerns with the current defence procurement process, and these concerns have been updated by the consultants through renewed consultations with a number of key industry representatives. In addition, views on the state of defence procurement today were also obtained from selected government officials. The views from each group addressed the overall context within which defence procurement takes place, the nature of current risk management practices and their consequences, and the challenges and opportunities associated with taking action to improve how risks are managed in defence procurement.

The authors found that there was considerable agreement among industry and government representatives on the first two facets – required improvements in the context within which defence procurement takes place; and the nature and consequences of current risk management practices. Industry representatives contributed ideas on how defence procurement could be made more effective for both government and industry. Government officials contributed ideas on potential improvements to procurement and on the challenges that need to be faced in making progress in improving defence procurement effectiveness, including through better strategies for managing risk.

The purpose of this Section of the report is to discuss and analyse these observations, concerns and proposals at a strategic level in preparation for a more detailed analysis of specific risk management issues and tool kits for dealing with them to be discussed in the next Section. The final Section of the paper then draws conclusions from the analysis in these two Sections and offers a proposed strategy to improve effectiveness in delivering the materiel needs of DND, while at the same time achieving more success in expanding the world class competitiveness and success of the Canadian defence industry.

In the remainder of this Section the following subjects will be discussed:

- Realities in defence industries;
- Relationships between defence procurement players;
- Key trends in defence procurement;
- Issues in defence procurement.

1) <u>Realities</u>

Defence industries around the world are managed, not freely competitive like most other industry sectors. This is because the only market for defence equipment is national governments – there is no (legal) private marketplace. Also, in recognition of the importance of having local, in-country supply capability for national security, international trade law provides for exceptions that allow countries to direct defence requirements to domestic companies.

To varying degrees major developed countries and developing countries designate defence procurement projects for domestic defence companies (often in partnership with foreign suppliers). Canada's current formalization of a requirement to maintain a defence industrial base is limited to shipbuilding and munitions. Other defence procurement proceeds in a framework of open competition. In the other G-7 countries the range of industry sub-sectors where domestic preference policies are exercised is much broader. The difference between Canada and the other G-7 nations is quite striking in this regard.

The current government has made an important long-term commitment to defence and to the procurement of defence equipment to serve the Forces' needs. But this commitment, like the other 50% of the government's discretionary spending, is being impacted by the need to find savings to right the government's overall fiscal imbalance over the next four years. This complicates further the priority-setting challenge at DND for military equipment and introduces a further uncertainty in the overall acquisition plan.

2) <u>Relationships</u>

The current relationship between government and industry in defence procurement needs to be improved. The current lack of trust, and the constraining and aggravating influence of the inefficiencies in the current procurement approach, make it more and more difficult for industry and government to achieve their objectives – for industry, winning business

by serving the client effectively; and for government, securing what the Forces need in a way that provides value to the government and Canadians.

There is a responsibility on both sides to come together and work to address this problem. It is time to complement the preparation of position papers with a new, ongoing, joint discussion process to address the following objectives:

- Each side needs to learn more about the context within which players must act on the other side – business 101 for government folks; and government 101 for business folks;

- Business and government people need to come together to discuss the procurement process apart from a particular procurement project – how the overall system is perceived by government and industry participants, what the issues are, what each party can contribute to solving problems, the successes and failures from the past; and,

- As one particular priority, industry and government need to find a way to have much earlier collaboration and discussion between industry and government on specific procurement projects (at the options evaluation stage where requirements and the budget are not yet frozen, and where all options are on the table – leasing, development of a new product, procurement off the shelf) so that it is not just the Chief of defence operations that is considering options in-house without the benefit of industry input to help reduce risk.

These less structured direct dialogue initiatives, without specific business opportunities hanging in the balance, would increase the access of both sides to contextual information, which in turn would build mutual understanding. This improved understanding would permit collaborative problem solving which in turn would build respect and trust. When trust is present much can be accomplished.

There also exist relationship issues between the three departments that have separate accountabilities and different lines of sight into major defence procurement projects. Some of these conflicts are healthy and represent the natural friction between these separated functions that typically exist in this way within all public and private organizations that conduct complex procurements. But there also exists a dysfunctional element to these frictions in government defence procurement.

Similar to the industry/government relationship, Industry Canada and PWGSC are not involved early enough in the procurement process. Similar to industry, they should be involved at the options evaluation stage when very basic questions about strategy and requirements are being posed. The implications of options for Canadian industry participation, and the implications of alternative procurement processes and risk balancing for the effectiveness with which Forces' requirements can be met, need to be discussed before an option is chosen and the budget frozen. These two departments currently enter the process to some extent at the Memorandum to Cabinet stage, but have

significant participation only at the SOIQ stage, after PPA is approved by Treasury Board.

3) Key Trends

The level of Canadian investment in military equipment has fluctuated significantly over time. The severe reduction in spending on military equipment during the 1990's necessitated significant retrenchments in the defence industry. The current government has made a significant commitment to long term investment in military equipment, but the timing of that investment has been called into question by the need to reduce spending over the medium term to meet deficit reduction targets (defence spending represents approximately 50% of federal discretionary spending). Some military investment projects will have to be cut back and others cancelled. The already present uncertainty in the specific timing of defence spending programs has been accentuated, and this inhibits the ability of industry to gear up for coming opportunities.

The Sponsorship scandal, the ensuing Federal Accountability Act, the rules-based environment of CITT, and the advent of departmental accounting officers have further extended the steady reorientation of the defence procurement approach that has been occurring over the past two decades. The emphasis in procurement has moved away from a primary concern with ensuring that DND needs are met, to a primary concern that the contracting process takes place according to standards of probity and prudence and that any form of possible legal risk is avoided.

The use of rated requirements and the trade-off between cost and functionality has diminished. All requirements are becoming mandatory, reducing opportunities to take advantage of COTS and making the first success of most projects the ability to survive the solicitation process. During the procurement process any event that caries an implication that there may be some form of legal risk can cause a full stop to the process, often for months, while the legal questions are studied. Along with this shift has come the desire to avoid any form of commercial or market risk by allocating all risk to the contractor, rather than, as in the past, managing risk that is best handled by government and/or negotiating with contractors methods for helping them deal with market risks that are beyond their ability to control. This trend to risk avoidance has also lead to the over use of firm fixed pricing approaches, including in circumstances where development risk calls for an initial, more flexible pricing strategy, but where firm fixed prices are demanded at the outset of the process.

This shift in relative emphasis away from ensuring DND get the equipment they need and towards avoiding the appearance of risk has caused industry knowledge and negotiating skill within government to atrophy. The last of the baby boomers with this knowledge (which was developed decades ago) either have already retired or are about to retire. There is little effort to hire people into procurement with the industry or engineering skills required to work and negotiate with industry. This makes it more difficult or impossible to work with industry to find better ways of formulating requirements, cooperating in managing risks, holding industry accountable, and implementing phased

procurement approaches with negotiated cost plus instruments for the developmental stages, and fixed price methods with appropriate risk balancing once the commercial production stage is reached.

This means that achieving real progress in moving away from the current inefficient, riskier procurement approach will require steps to increase expertise and professionalism in procurement both within DND and within PWGSC. Government requires people with engineering and industry experience to negotiate improved procurement strategies with industry. This skill upgrade is a challenge since government is already pressed to recruit and train sufficient people.

4) Issues

In the CADSI 2009 nation-wide consultation with the defence industry, defence companies made the following series of observations and suggestions on areas where the effectiveness of defence procurement could be improved by government and industry. These target issues and action areas were reconfirmed and additional insights were contributed in the recent consultations undertaken by the authors with senior industry representatives. The problems that underlie these industry observations, and the challenges that must be faced in addressing them, were recognized in the authors' consultations with government representatives.

The issues raised by industry in 2009 included:

- The defence procurement process is unnecessarily complex and burdensome, adversely affecting program delivery;
- Defence procurement strategies and processes do not sufficiently reflect domestic industrial objectives;
- Requirements are defined in an overly prescriptive manner with too many mandatories, leading to failed procurements, companies not bidding, and program delays;
- The procurement system is risk averse and does not reward program delivery;
- Industry is required to take on risk that is better managed by government;
- The government's decision-making criteria do not achieve effective program delivery and optimal participation by Canadian industry in defence spending;
- An overly thin layer of experienced and knowledgeable defence procurement, contract and program managers in government is decreasing defence program transparency, accountability and consistency, and increasing risk avoidance and redundant layers of process and management to compensate; and,
- Single point of accountability on air fleet acquisition and ISS is not a good procurement model for Canada or for Canadian industry.

The realities, relationships, trends and issues discussed in this Section provide an overall strategic context for considering how the effectiveness of risk management in defence procurement can be improved. The next step is to consider in the next Section the more specific issues in risk management and the tools that can be employed to address them,

before we move on to drawing conclusions and making recommendations in the final Section.

III ISSUES IN MANAGING RISK

This Section of the paper details and discusses the specific issues that were raised by industry in 2009 along with additional insights and feedback received from industry and government representatives by the authors in 2011. This Section identifies potential approaches and mechanisms to addressing the concerns with a view to establishing a basis for dialogue among industry and government procurement stakeholders.

Before moving on to a consideration of specific risk management issues it is useful to consider several key references that provide useful context for our consideration of risk management issues.

The CADSI Board of Directors set 11 Policy Priorities for CADSI in 2011 (these are contained in Annex B). One of these priorities is to secure a change to defence procurement policy in order to:

Assign procurement and contract risk to the party best suited to manage the risk.

The current risk framework for defence procurements is not working. Industry is expected to carry risk that is more properly held by government. The consequences to taxpayers and the government of the current imbalance include: the best suppliers may not bid; they may not be encouraged to bid the best solution; and/or they will price into their bids a premium for undue risk they are being asked to bear.

In the CADSI 2009 Report (Annex A) Recommendation 2 on Improve Defence Procurement Process and Practices includes the following two recommendations:

> *2-1b Balance program delivery objectives against legal and contract risk*
>
> *2-1c Allocate risk between Government and industry where it can best be managed, and reflect this in contract terms and conditions.*

The CADSI 2009 Report provides an overall summary of the specific proposals received by industry in the 2009 consultation for improving Canadian Defence Procurement (it is attached to this report as Annex C).

The risk issues discussed below are derived from the 2009 CADSI report and supporting industry inputs. The focus is primarily on high-value, complex capital acquisition procurements. The presentation sequence commences with broader based concerns and then moves to a discussion of more specific issues and policies. A total of 22 risk topics are addressed herein. The issues are organized into four categories, consistent with their nature, as follows:

A. Project Risk
B. Procurement Process Risk
C. Contractual Risk Imbalance
D. Single Point of Industry Accountability (Acquisition and In-Service Support)

In each case the issue is described, the risk is qualified and potential remedial action(s) identified. To the extent possible, the relative advantages and disadvantages and obstacles to implementation of the remedial action are also discussed.

A. PROJECT RISK

1) Budget

Issue: Funding decisions for the acquisition and long-term support of major defence systems are initially established based on rough order-of-magnitude cost estimates (indicative costs), often without the benefit of meaningful industry input as to cost. Industry has observed that once the project is announced, the initial rough estimate of project costs becomes the de facto fixed, immutable budget number.

Risk: DND is locked into the reality of a fixed budget constraint from the outset, at a time when the cost cannot be established with a high degree of certainty. The intended government project management practice of refining the ultimate project deliverables, reducing technical risk and increasing confidence to arrive at a substantiated cost via successive definition phase processes is effectively pre-empted. The specific risk is that DND will be unable to deliver the mandated capability within the budget constraint.

The definition phase activities may evolve over a period of several years which often renders the initial project estimate inoperative due to inflationary effects, changing technology or evolving mission needs. Because the budget is fixed, DND is only able to manage schedule and operational capability variables. It is ultimately forced to accept less capability than initially envisaged in the project charter.

Actions: Improve the quality of the initial project cost estimate by introducing increased rigour and consultation in the process leading to initial project announcement and funding on two fronts:

- Engage PWGSC and Industry Canada early in the process, at the Options Analysis stage to assist in developing more realistic estimates associated with candidate procurement strategies and the overall project budget requirements.
- Engage industry in open, structured dialogue early in the process, at the Options Analysis stage, to help determine industrial capability to meet the

need, to identify risks, and to help identify potential solutions and the implications of pursuing candidate procurement strategies.

Government approval authorities should introduce flexibility in the budget management process and make allowance, in the form of a project reserve fund, to allow for the definition phase processes to proceed as intended and seek to develop and propose an optimum solution that fully addresses the performance, time and costs dimensions. The project management process is in place to address complex requirements in a systematic, iterative manner in an environment of uncertainty.

DND to secure required flexibility from Treasury Board in the management of the CFDS to shift funds from lower to higher priority requirements so as to ensure project mandates are achieved. When setting project budgets, express them in Current Year (CY) dollars and make provision for the effects of inflationary factors and currency fluctuation.

Discussion: The advantage of instituting the above measures would be to materially increase the likelihood of a successful project outcome through the establishment of realistic, achievable time, cost and performance objectives.

Government officials have observed that early involvement of PWGSC and Industry Canada would be desirable. However, it would also entail a commitment of scarce government resources without commensurate budget coverage and, in many cases, in support of initiatives that ultimately may not proceed even to Preliminary Project Approval phase.

2) Requirement Definition

Issue: Defence requirements are expressed as a rigid set of equipment-based specifications, rather than in the form of a required capability outcome. Defence requirements are set in the absence of knowledge about industry capability in general and Canadian industrial capability in particular.

Risk: The above practice leads to sub-optimal project delivery in terms of cost, technical performance and time. Highly prescriptive specifications which contain hundreds of mandatory requirements offer little opportunity to secure the best value-for-money solution for Canada and lead to:

- Higher costs due to over-specification; fewer companies willing to bid or able to successfully bid, thereby reducing the prospects of achieving maximum benefit from the competitive process; companies that do bid pass the cost of managing the associated risk to government;
- Foregone technical performance opportunity due to stifling of innovation; companies have to bid the old technology that was specified;

- Delayed project delivery due to failed qualification and bid processes leading to repeat solicitations.

Action: Move to performance specifications which focus on outcome-based capability solutions rather than equipment-based requirements. Couple that with bid assessment and contractor selection criteria to better reflect 'value-for-money' considerations.

Establish a meaningful consultation business model with multi-stakeholder groups, including industry representation, for the conduct of defence procurements in order to help ensure that the solutions are achievable. Industry has observed that in many instances the current procurement-related mechanisms, such as Industry Days, are a one-way information flow with no real opportunity to engage.

Discussion: Government officials, at senior levels, have generally agreed that defining their needs via less prescriptive, performance-based requirements documentation is the preferred approach. They also identified practical challenges in terms of the available skill sets and capacity in the system to develop performance specifications and to administer value-based evaluations which may entail the application of a level of judgment.

It is also reported that there is a cultural issue to be overcome in this regard as well within the DND technical community. The DND technical requirements community is often pre-disposed to impose prescriptive requirements, without an appreciation of the industry's ability to respond or the implications for procurement and project success. There is insufficient discipline and control in the system to prevent this from occurring.

3) Project Delivery

Issue: The length of time required to move from needs analysis to project implementation is excessive. Multiple project examples were cited such as Maritime Helicopter Project, Aurora Incremental Modernization Project, Fixed Wing Search and Rescue, Medium Support Vehicle System and Joint Support Ship.

Risk: Project delays directly and negatively impact the achievement of its cost and performance objectives as well as the time objective. Industry participants incur significant costs over a period of years to maintain bid teams. The costs ultimately are passed to government in the bid price. Costs increases with the passage of time and fixed budgets do not allow for corresponding upward adjustment, thereby reducing DND buying power including the ability to undertake R&D, thereby reducing innovation and international competitiveness.

Action: Industry has suggested that the procurement process proceed much more quickly to down select mode with a winner, or short-list of two or three final contenders, declared earlier in the process followed by a period of contract negotiations leading to contract award.

Discussion: The risk-averse nature of the government's approach to procurement is a primary obstacle to moving to a more open free-flowing system. Government procurement is currently much more process oriented than results oriented, an environment in which fear of potential claim of unfair treatment carries more weight than the benefits that might be derived from an unscripted exchange of information. Government procurement officials are unable to exercise any discretion that moves away from the standard, book approach for fear of the consequences of a possible mistake. Industry also observed that project delivery risk and uncertainty are exacerbated by a lack of accountability for timely project initiation, insufficient oversight, and a high degree of turnover of government personnel.

4) Commercial–Off-The–Shelf (COTS) / Military-Off-The-Shelf (MOTS)Requirements

Issue: DND nominally asks for a MOTS or COTS solution but then incorporates numerous unique-to-Canada requirements into the specifications and Statement of Work and/or establishes specialized Quality Assurance requirements that do not add value just cost. Ultimately it becomes a custom job as bidders are obliged to modify or adapt their base MOTS/COTS offering to meet the updated requirements statement and it eventually becomes a unique, custom requirement that is in essence MIL Spec in nature. This may rule out larger players and attract custom engineering shops at much higher prices.

Risk: Increased project risk in terms of time, cost and performance. The project budget, which was initially struck on the basis of a acquiring an Off-The-Shelf solution, is jeopardized due to this form of scope creep. Industry is compelled to modify its available, proven product offering in order to meet the customized, unique-to-Canada statement of requirements, thereby incurring significant non-recurring costs. Technical risk and schedule risk also increase as a result of developing and re-qualifying the non-standard solution.

Action: First, determine what off-the-shelf is intended to constitute. Then, in those instances where projects are mandated to achieve their objectives via an off-the-shelf type solution, do not introduce material enhancements that will cause industry to incur non-recurring development or engineering design work prior to completion of the down-select process

Drive requirements to ensure that the base solution remains off-the-shelf in nature. The off-the-shelf solution can be assessed as to its future growth potential. Modifications in the form of additional or enhanced functionality may then be incorporated downstream as budgets and priorities evolve during the implementation phase or in the course of the life-cycle management of the asset. This may require the government to acquire background intellectual property.

Discussion: Government officials have acknowledged this as an issue, one that requires a disciplined approach to defining requirements and one that is also cultural in

nature to some degree. Again, increased dialogue between government and industry will lead to better understanding as to the time, cost and technical risk implications of superimposing additional requirements on a MOTS/COTS offering and better decision results.

5) Procurement Strategy

Issue: Procurement strategies regarding the acquisition and support of major defence systems are not developed and promulgated in an integrated fashion, one designed to secure the optimal combination of defining project characteristics, namely, delivering the capability Canada requires under fair and reasonable commercial terms while ensuring the maintenance and advancement of an indigenous defence industrial capability to meet its ongoing national security needs.

The quasi-standard approach sees the three stakeholder departments (DND, IC and PWGSC) operate independent of each other to ensure their respective objectives, mandates and interests are satisfied. DND develops the technical statement of requirements to address the doctrinal and mission objectives of the project charter. Industry Canada sets the IRB threshold requirements for direct and indirect content. PWGSC develops the solicitation and contracting plan to ensure fairness and transparency in the process and to maximize competition.

Risk: The resultant procurement strategy does not adequately address Canada's strategic national objectives in an integrated fashion. It is ultimately sub-optimal in terms of time, cost, performance, socio-economic and defence industrial capability objectives.

Action: Establish clearly articulated objectives for the project that go beyond the standard time, cost and performance parameters to also address Canada's ability to support and maintain the system over the course of its life-cycle and associated Canadian defence industry objectives. Ensure the resultant procurement strategy addresses the full suite of objectives via a fully integrated stakeholder department process.

Discussion: Industry representatives observe that Canada's strategic interests have been actively considered in the procurement strategies adopted for certain classes of requirements, particularly with regard to shipbuilding. The National Shipbuilding Procurement Strategy (NSPS) whereby two centres of excellence are to be established and maintained for the construction of the federal fleets is the most prominent and recent example.

Industry has also identified a number of technology areas which it believes are important and relevant to Canada's sovereign interests and to its defence industrial base but are not addressed in a consistent manner, notably in the areas of combat system integration and the conduct of long-term in-service support of weapons systems in Canada. In specific terms, the recent acquisitions of air platforms such as C-17 and C-130J do not provide for ISS to be carried out in Canada. On the other hand, navy ships to be built under the

NSPS umbrella will be supported by Canadian facilities as will armoured vehicle fleets that are currently in the procurement pipeline, such as TAP-V and CCV.

Industry has suggested that Canada make use of the national security provisions in trade agreements in the same way other nations do to facilitate its strategic interests; that is, to exempt high value defence and national security requirements from the obligations and thereby to benefit and support the maintenance of Canadian industry to be able to respond to Canada's national security needs.

B. PROCUREMENT PROCESS

6) Systemic Aversion to Risk

Issue: Gomery has made the government very risk averse in terms of criticism from central agencies and the Auditor General. This manifests itself as a need for cost certainty, creating inefficient procurement processes (firm price where not warranted, over early establishment of budgets that are later (with more information) determined to be unrealistic. CITT has created a rules-based environment that allows very little creativity on the part of the government or industry.

The procurement process is overloaded with checks and balances. Government is more concerned about the risk of promulgating an imperfect contract, one that does not fully conform to standard policies or does not yield a 100% certain result than the risk of the customer department not receiving the required right product or service in a timely manner. Decision-making becomes stifled leading to lengthy delays in implementation.

Senior procurement officers and managers, who are accountable for the results of the procurement process, have very limited latitude to exercise discretion in the interests of advancing project objectives. Industry has observed, for example, that the entire procurement process stalls for weeks and sometimes months, if a decision contains any hint of legal implication.

Risk: The risk is project failure in terms of time, cost and performance dimensions. Complex, high value defence system procurements most often entail a level of technical risk in the form of engineering development or the adaptation/modification of existing technologies to meet specific military needs. Project implementation and delivery encompasses many phases such as conceptual design, proof of concept, detailed design, production, test and evaluation, acceptance and life cycle support. Each phase involves a level of uncertainty and risk.

The application of standard procurement, contracting processes and rules of engagement that are utilized in the acquisition of standard products do not meet the needs of such a complex procurement. However, because of its risk-averse posture the government project team will often seek to implement a procurement strategy and plan that fits the

standard product acquisition model and to establish contractual instruments that insulate the government from every aspect of uncertainty (technical, cost and performance).

Notwithstanding the complex, custom nature of the project to be delivered and its inherent uncertainty, government demands certainty from industry in the form of firm, fixed price contracts, prescriptive specifications containing hundreds of mandatory requirements coupled with hard-wired delivery schedules, all to be delivered within a pre-defined fixed budget constraint.

The above approach can and has resulted in project failures. Industry, faced with having to assume the risks, ultimately must factor the uncertainty and risk quotient into its pricing and technical offering. In recent years major defence procurements have been cancelled many years into definition phase process and re-initiated because the initial bid response yielded no responsive bids or bid responses exceeded budget by as much as 50%. Other projects have been significantly late in achieving delivery because the developmental nature of the requirement was not accounted for at the time of contract award.

Action: Recognition within government that complex procurement by its nature entails uncertainty and that seeking to allocate all associated risk to industry yields unsuccessful project outcomes. Return to more suitable procurement processes and contractual frameworks that address the risk imbalances as discussed in the following section.

Empower the procurement community, at the officer, manager, director levels and provide incentives to achieve successful project outcomes. The current system is focused on ensuring that the process is risk-free with officers and managers more concerned with the consequences of a mistake than the project delivery. Contracting and procurement authorities are authorities in name only. More and more they have become facilitators and process managers, akin to bank tellers, with even minor decision-making focused at very senior levels.

Discussion: Focused attention on the management of complex procurement is warranted. PWGSC officials have carried out a detailed study for marine procurement (although it has universal application) that addresses procurement streamlining, risk rebalancing and performance optimization for acquisitions of varying levels of complexity. The recommendations from this study are now a guideline for Contracting Authorities (so that they can apply as appropriate on a case by case basis) for Marine procurements. The risk rebalancing measures now appear in PWGSC Contracting Authority Requests. Though most of the major Marine procurements are yet to come, PWGSC have introduced a number of the recommendations already:

- Using a Design then Build approach in new ship constructions to mature technology with a design check in the implementation contract has been implemented on OFSV, IFSV, AOPS;
- Custom development procurements at ‘level 3’ complexity should apply a Design

and Build approach with a down-select to one contractor pre EPA and a co-evolution of the solution as is being implemented with NSPS;
- For custom development 'level 3' projects extensive SOIQ engagements are now underway;
- Liability caps are consistently applied on an annual and all of contract basis;
- Commercial Classification Societies are being used extensively; and,
- Identification of "Crown delay" provisions for custom development level 3 projects is in place on VISSC.

PWGSC officials report that the department has approved its policy and process framework for routine (rules-based) procurements and standard (more customized acquisitions to mature standards) procurements to align with Treasury Board policy.

Complex developmental procurement procurements, which are the focus of this report, may come under interdepartmental review in the near to medium term. Such an initiative should be encouraged. It would represent an opportunity for industry to engage with government and to help establish appropriate strategies for managing acquisitions that are characterized first by evolving technologies and circumstances with the rules and standard methodology approaches mentioned above as secondary support.

7) Loss of Institutional Knowledge

Issue: Procurement officials in DND and PWGSC, in many cases, do not possess the professional training or skill-sets needed to effectively manage and deliver a complex, high-value project for the acquisition and life-cycle support of highly sophisticated, technologically advanced, customized weapon systems, systems that will define the Canadian Forces capability to defend Canada's sovereign interests over a period of three or four decades.

In addition, the length of the procurement process exceeds the normal rotation period for DND technical and procurement personnel as well as PWGSC contracting staff. This loss of continuity leads to project disruption associated with re-learning and re-negotiation.

Risk: Lack of capable, qualified resources places project delivery in jeopardy. In order to achieve successful project outcomes, involving the stewardship of billions of taxpayer dollars, government project teams need to be able to pro-actively manage the uncertainty based on the professional capabilities of the team members, achieved through the application of proven project management techniques and based on an understanding of industry capability.

Action: Provide training and development in the areas of project management and complex procurement to technical, procurement and contracting officers and managers. Provide them with opportunities to better understand industry capabilities and challenges. It has been suggested that procurement and contracting officers who are responsible for managing complex procurement should be professional certified, as is the case in other

countries such as the United States. In addition, Interchange Canada offers a structured means for industry and government personnel to be employed in their counterpart organizations, a means to learn "government and business 101".

Discussion: Government officials acknowledge that there has been a loss of institutional knowledge and that the skill sets, capabilities and experience to manage major complex project procurements are lacking. This is attributable in part to demographics. The mid-1990's Program Review activity was coincident with the close-out of the remaining major projects of the day, such as TRUMP and CPF, and caused the deferral of new capital acquisition projects. These factors generated a wave of departures from DND and PWGSC to access early retirement incentives. Budget pressures precluded the hiring of new officers. The capability has further diminished over time as the remaining baby boomer generation moves to full retirement.

Government will need to achieve a level of confidence in the capabilities and capacity of the procurement community before it will return some level of discretionary authority to the directorate or project level. Government officials have acknowledged that they face challenges in this regard in terms of the availability of qualified resources.

The proposed actions outlined above to re-establish a complex procurement professional capability require an infusion of resources. Securing budget allocation for this purpose is a challenge given the current federal government focus on deficit reduction.

8) Lack of Meaningful Dialogue with Industry

Issue: The rigid, inflexible nature of industry interaction with government is frequently cited as major impediment to successful project delivery. There is little opportunity for collaboration with industry to help achieve best solution for Canada. Even Industry Days, which take place in advance of the formal solicitation process, are convened in a public, tightly controlled forum by officials who are essentially reading from a script.

Risk: Not engaging in meaningful dialogue with industry at the outset of a major procurement increases the risk that a project will not achieve its primary objectives. It leads to the issuance of ill-defined, possibly unachievable requirements which, in turn, causes industry to take no-bid decisions or to submit non-compliant bids. At times this has resulted in the government being unable to proceed to contract, cancelling the competition, modifying its statement of requirements and then re-initiating the entire solicitation process.

Action: Engage industry early in the process in a meaningful way as detailed at Item 1 above. During the time leading up to the solicitation phase, maintain an open dialogue with industry and be forthcoming as to the overall requirements. For example:

- Post more comprehensive draft solicitation documents for industry comment that go beyond draft technical specifications, to include Industrial and Regional

Benefit parameters, draft bid evaluation plans, pricing bases for the acquisition and in-service support elements and proposed contract terms and conditions. These components are critical to understanding the full requirement, what the relative priorities are and the prospects of assembling a responsive, competitive offer that will satisfy the project requirements and constraints;

- Make the Industry Days processes an opportunity for a real exchange of ideas, and an opportunity for clarification and improved understanding that they were designed to be. Simplify the SOIQ processes and use it for its intended purpose. Similarly SOIQ processes have evolved into mini-RFPs leading on more than one occasion to re-solicitations or second SOIQ processes being engaged.

Discussion: The advantages of a more open dialogue and interactive process are many and a key ingredient to successful management of complex procurements. It materially increases the prospects of government and industry having a clear understanding of requirements and their achievability. It reduces the risk of false starts and failed solicitation processes

9) Excessive RFP Demands Over Lengthy Timelines

Issue: Solicitation processes on major, complex procurements often unfold in multiple phases over periods of years. Canada's track record in this regard is not good in terms of the time it takes to reach project implementation.

Risk: In addition to the schedule risk that is realized, these lengthy, drawn out gestation periods, cause increases in cost. Industry incurs significant costs commits resources to stay in the game over a protracted period, perhaps a decade. The process causes industry to spend inordinate periods of time and funds, usually without compensation, to meet multiple submission demands (LOI, SOIQ, RFP and re-bids) coupled with onerous terms and conditions and rules of engagement.

Internationally based firms make investment decisions such as whether to pursue a specific Canadian market opportunity, based their appreciation as to whether the projected marketplace will materialize. In general there is a heightened level of uncertainty within industry as to whether and when the Canadian government will proceed with major procurements, some of which have been announced on more than one occasion. There is a risk that major defence industry players will decide to seek opportunities in more predictable markets outside of Canada, thereby limiting Canada's access to the best available solutions.

Action: Canada needs to manage the procurement programs associated with CFDS in a much more predictable, consistent manner than has been the case over the past two decades.

Discussion: The defence procurement program has been subject to multiple implementation delays, false starts, cancellations and multiple changes of direction over

the past two decades, going back to the cancellation of the EH-101 contract for NSA/NSH. The announcement of CFDS was seen as a major step in bringing stability and predictability to Canada's defence procurement profile going forward. The CFDS is already challenged by successive budget reduction announcements due to fiscal pressures.

C. CONTRACTUAL RISK IMBALANCE

The current approach to defence contracting is to establish contractual arrangements which insulate the government from commercial and financial uncertainty in the marketplace by transferring all such risk liability to industry.

Major defence contracts incorporate terms and conditions and rules of engagement such that the contractor assumes all risk associated with fluctuations in domestic or international economic conditions, risks that directly impact the cost of performing and delivering the Work of the Contract. The contracts also prescribe measures and contingent liabilities linked to contract performance on a scale that, if realized, can threaten the very survivability of the contractor.

Risk imbalance is a significant cost driver. Industry has estimated that the cumulative cost impact at no less than 10% and as much as 20% - 25% in specific cases. A 10% cost driver on the $240 B CFDS portfolio is $24 B, equal in scope to the value of the most costly planned defence acquisitions such as F-35 or CSC. Specific contract risk elements and proposed actions are discussed below:

10) Firm Price and Firm-Fixed Priced Contracts

Issue: Contracts for the acquisition and support of major defence systems continue to employ firm-fixed price or firm price bases of payment. Firm-fixed price arrangements are suited to situations in which the product or service to be delivered is well-defined and the material and labour cost inputs are predictable. This mechanism provides cost certainty to the government.

However, this methodology is not appropriate for most major defence procurements. Typically industry is required to adapt existing technologies or to derive new product solutions to meet complex, custom requirements. Consequently a significant portion of the cost inputs cannot be predicted with reasonable certainty.

Risk: Increased cost to the government and the taxpayer. In order to establish a firm price proposal in uncertain circumstances, Contractors will need to estimate all of the cost elements entailed in the work and then make provision in the price to account for the risk associated with any uncertainty as to the cost elements. The contractor will therefore factor a risk premium into the price to account for the cost uncertainty surrounding any developmental or custom engineering work required to define the solution as well as the degree of uncertainty as to the final design to be produced.

Action:

Utilize a basis of payment that is commensurate with the nature of the work and the degree of certainty as to the cost inputs required to perform and deliver the work of the contract. Specifically,

a) Utilize a form of cost reimbursable basis of payment for those elements of the work that are developmental in nature or for which the costs are not reasonably predictable;

b) Utilize firm price or firm-fixed price arrangements for lower dollar value requirements or in cases where the cost inputs can be accurately determined by the bidder.

Discussion: By insisting upon a firm fixed price approach to contracts involving a development component, government does not avoid the cost of the associated risk. On the contrary it guarantees that government will incur the cost because industry accounts for the risk in the contract price. In the case of development work, industry cannot estimate the cost of the engineering development with certainty and must factor in a contingency amount to cover the worst case scenario of possible overruns in time and materials.

Should the government agree to share the risk by proceeding with a form of cost reimbursable or target incentive type contract for all or part of the work (as has been utilized in the past on major procurements such as CPF), it will need to establish and manage budget contingency to account for the associated risk. This project risk remains within the control of government and the contingency amount allocated to the risk pool will be less than the amount industry factors into its firm fixed price.

Two obstacles to implementing such an approach have been identified. In the current absolute risk-averse environment senior departmental officials (Deputy Minister, Chief Financial Officer) are unlikely to agree to assume any such risk. Secondly, the procurement and contracting staffs are unlikely to possess experience with or the skill-sets required to formulate, implement and manage a cost reimbursable contract.

11) Currency Exchange Fluctuations

Issue: Major defence procurements often contain significant elements of foreign content and are delivered over an extended time period during which the respective currency exchange rates may fluctuate significantly. Government demands that contracts are priced in Canadian dollars with no provision for adjustment for fluctuations in foreign exchange rates.

Risk: Increased cost to government and the taxpayer. Contractors estimate the cost based on existing exchange rates and factor a risk premium into the contract price to

account for the cost uncertainty arising from future foreign exchange rate fluctuation. The Government pays for the risk whether it is realized or not.

Action: Include Foreign Exchange Adjustment provisions in major defence contracts to offset fluctuations in major currencies.

Discussion: Government officials have expressed a general willingness to implement Economic Price Adjustment (EPA) provisions in contracts that are beyond a minimum period of performance and exceed a minimum foreign content value.

12) Economic Price Adjustment

Issue: The performance of major defence procurements is often conducted over a multi-year period. The effect of inflation on core costs elements such as material, commodity and labour can be significant and is beyond the control of the contractor. Contracts are required to be priced on a firm-fixed price basis.

Risk: Increased cost to government and the taxpayer; Contractors factor a risk premium into the contract price to account for the cost uncertainty arising from inflation in the economy. The Government pays for the risk whether it is realized or not.

Action: Include Economic Price Adjustment (EPA) provisions in major defence contract to offset the effects of inflation in the economy.

Discussion: Government officials have expressed a general willingness to implement EPA provisions in contracts that are beyond a minimum period of performance and exceed a minimum $ value.

13) Onerous Contract Payment Arrangements

Issue: Contractual milestone payment provisions are onerous and inconsistent with the pace at which the contractor incurs cost. Contractors often face lengthy, unwarranted delays in payment and are forced to operate with negative project cash flow, in effect becoming the government's financier.

Risk: Increased cost to government and taxpayers. Contract payments are typically not linked to cost incurred but to achievement of complex, multi-faceted milestones that are theoretically correspond to the government's assessment of value of the work performed. High-value payments are withheld due to minor discrepancies – to avoid at all costs being in an "overpaid" position. Furthermore, contract payments are subject to significant holdbacks. Final contract payments are withheld pending completion of close-out activities by the government that are often beyond industry control.

Industry incurs cost associated with negative cash flow during the course of the contract. The contractor bears interest costs on moneys it must borrow to offset the negative cash

flow, often significantly reducing its available lines of credit, and factors the cost into the contract price. The government pays a premium as a result.

Action: Establish contract payment arrangements that are commensurate with the contractors work schedule and are cash-flow neutral. Allow some flexibility in the final negotiations leading to contract award to realign the payment arrangements as much as possible to achieve neutral cash flow and to reduce government cost.

Discussion: The milestone payment arrangements are one of the last items to be developed by government procurement staff in isolation from industry input. There is often little opportunity for industry to comment or suggest alternative arrangements which are more reflective of the way the work is to be carried out and the spend profile. Industry often sees the payment provisions only when the RFP is published.

14) Warranty Requirements

Issue: Crown warranty requirements exceed normal vendor warranties, which are more limited in time and scope.

Risk: Increased cost to Government and taxpayers.

Action: Increased usage of standard vendor warranties at the sub-system level.

15) Liquidated Damages

Issue: Major defence contracts include schedules of liquidated damages, penalty amounts the Contractor will have to pay in the event specified contract performance requirements are not achieved. Liquidated damages are typically linked to achievement of scheduled delivery of the goods or service, performance of the goods delivered and achievement of Industrial and Regional Benefit (IRB) commitments. The value of Liquidated Damages can run to tens of millions of dollars.

Risk: Increased cost to Government and taxpayers. Liquidated damages are, by definition, a pre-agreement between the parties as to the extent to which the Government will be damaged in the event certain contractual obligations are not achieved. The complexity and technical risk inherent in many major defence procurements create a tangible performance risk to industry contractors, as does the requirement to meet 100% IRB commitments. Industry will factor a premium into the contract price respecting the associated risk.

Action: Eliminate or significantly curtail the use of Liquidate Damages provisions in major defence procurements, particularly in cases where the requirement contains a developmental or leading edge technology component.

Discussion: The use of liquidated damages provisions has become enshrined over time as a means of ensuring contract compliance. It has actually sometimes served to skew industry behaviour which sees it as a cost of doing business and cost the work commitments accordingly.

16) Unlimited Liability Risks

Issue: Contract terms and conditions expose Contractors to unlimited first party liability. The liability is beyond the financial capability of Contractors to manage or insure.

Risk: Increased cost to Government and taxpayers; contractors include a risk premium in the price for uninsurable risk; limits industry capability to participate in large-scale procurements or receiving no-bids from otherwise qualified bidders.

Action: Institute liability caps (per occurrence, per year and for the overall contract). The caps would be linked to the complexity, value and technical risk of the project

Discussion: Industry has identified this as a particular problem for international bidders, such as those based in the United States. It is not an issue for domestic requirements because the U.S. government is self-insuring but is significant in Canadian procurement. Unlimited liabilities can expose companies to a financial risk that is beyond their capability to sustain and leads increasingly to "no-bid' decisions.

PWGSC officials have moved to establish liability caps for marine procurement.

17) Contract Liability Insurance

Issue: Major defence procurements often require industry Contractors to carry inordinately high levels of costly liability insurance. The cost of the insurance, if it can be secured at all, is factored into the contract price.

Risk: Unwarranted increased cost to Government and taxpayers.

Action: Prescribe liability insurance requirements that are consistent with industry standards.

18) Total System Responsibility coupled with government control

Issue: The Government assigns Total System Responsibility (TSR) to the Contractor for delivery and performance but retains control and authority over elements of the work

Risk: Sub-optimal project delivery (time, cost, performance) leading to disputes. Contractor does not have authority and flexibility to deliver contractual mandate.

Action: Only assign Total System Responsibility in cases where the Contractor holds commensurate authority to deliver the full solution in an unfettered manner.

Discussion: This is a recurring theme in defence contracts and speaks to a lack of understanding as to the respective obligations of the parties with regard to acceptance of the system in question. One example cited by industry is the case of the Contractor having assumed TSR but still being subjected to Preliminary Design Review and critical design Review processes.

19) Financial Guarantee Requirements

Issue: Government insists on industry providing performance bonds, corporate guarantees, letter of credit as a matter of course.

Risk: Increased cost to Government and taxpayers; securing financial instruments is expensive and impacts company access to operating capital; the cost is incorporated into the Contract Price and ultimately passed to Government.

Action: Tailor financial guarantee demands to the demands of the individual project and the financial strength and capability of the Contractor.

Discussion: These types of provisions are intended to provide assurance to the government that the contractor has the financial means to carry out the work and that it will indeed perform the work. They are typically applied across the board as part of a competitive process and the commitments secured as part of the bid submission.

It would be appropriate to review the requirements as part of a contract finalization process once the contract winner has been selected based on the actual strength of the winning bidder - to determine whether sufficient risk exists to merit the cost of obtaining such sureties. Performance bonds force the company to incur additional costs. Securing parental corporate guarantees in some cases may offer a more readily available method to better constrain this risk. When it is determined that some form of guarantee is required, the parties could mutually establish the best instrument in the circumstances.

20) Total Financial Visibility in Fixed Price Framework

Issue: Contracts priced on a firm price basis are subject to a financial management regime that includes Earned Value reporting and Cost Schedule Control System (C/SCS) management requirements.

Risk: Increased cost to Government and taxpayers; the cost to Contractors and Government of administering such programs is expensive and of little to no utility in a fixed price environment

Action: Only incorporate Earned Value and C/SCS management requirements in defence projects characterized by a high degree of technical risk and development for which the contractual basis of payment is cost-reimbursable not firm priced.

Discussion: The above argument has been advanced along the same theme. Industry raised numerous examples of instances in which the government includes programmatic deliverables that are of little practical utility but drive costs and tie up resources unnecessarily. These include:

a) Excessive Intellectual Property rights flow down requirements;
b) SOW cost drivers – CSCS/Earned Value/Data deliverables; level of detail beyond that required for project control and inconsistent with project type;
c) Reporting requirements - Volume and detail set forth in Contract Data Requirement Lists (CDRLs) and Data Item Description (DIDs);
d) Excessive technical and commercial certification requirements with bid submission

21) General Contract Conditions - Suspension of Work

Issue: PWGSC Contracts provide for suspension of work for a period of up to 180 days. During this time the Contractor must comply and take steps to minimize costs. Within this period of time the Contracting Authority may rescind the suspension or terminate the contract. An extended work suspension period without a decision creates a financial hardship and business risk to industry, particularly for smaller entities.

Risk: The prospect of an extended suspension of work period is financially onerous for industry to accept; it impedes the business planning of a Contractor for close to six months and can threaten its very viability.

Action: Industry has suggested limiting the maximum period of suspension to 60 days.

D. SINGLE POINT OF INDUSTRY ACCOUNTABILITY FOR ACQUISITION AND IN-SERVICE SUPPORT

22) Original Equipment Manufacturer

Issue: The practice of requiring that the long-term (20 year+) ISS contract arrangements to support a major defence system be established in concert with and as part of the system acquisition process and further insisting that the OEM also be the ISS contractor.

Risks: Industry has identified a number of risks associated with the above policy:

- Loss of sovereign control over the asset life-cycle; control is ceded to the international OEM;

- Loss of skills, knowledge and high value work for Canada - no assured source of supply for Canada to support the asset;
- Loss of flexibility in the support and maintenance of the system –shortened life expectancy;
- Long-term ISS contract under fixed price arrangement creates a certain degree of cost certainty to the government for the then-understood work scope BUT it is already an unnecessarily high cost – the contractor bears the risk of future uncertainty in its cost to provide the service over the course of two decades or longer and will build a significant risk premium into the fixed price proposal. Witness the wild swings in commodity prices between 2005 and 2011;
- Loss of future negotiating leverage - increased downstream cost when technology updates are required to meet evolving need or threat; the government is held hostage to the OEM for downstream technology infusions.

Actions

- Canada discontinue or significantly modify the policy of Single Point of Accountability for acquisition and support of major defence systems;
- Canada require OEMs to commit to technology transfer arrangements to enable support of the systems in Canada by Canadian industry – long-term support in Canada to be arranged by competition (or allocation to designated COE) following an interim period of support by the OEM post-delivery and IOC.

Discussion The government needs to decide how it wants to structure and fund the development of systems. Future weapons system development opportunities can be implemented in several models – government funded (e.g. F-22, P-8 Poseidon); contractor funded (e.g. C-130J (Lockheed Martin), VBCI Close Combat Vehicle (Nexter)); international government funded (e.g. JLTV, JSF, Typhoon, A400M). Then the government needs to decide if it wants to acquire the IP necessary to maintain the system in Canada (see item 23 below).

Government officials acknowledged the challenges and risks associated with long-term ISS contract arrangements but provided a mixed response to the question of national interests being served by ensuring ISS is carried out in Canada. Industry Canada officials felt this matter was a question of broader national defence policy and that DND should take the lead in articulating the importance of such an industrial capability. They did not see the direct link to IRB objectives. DND noted that the ISS in Canada question has been handled differently in the recent directed air platform acquisitions than is the case for shipbuilding and land forces requirements.

Most other developed nations negotiate the involvement of their industry in ISS for strategic security and economic reasons. Canadian industry has delivered well on this responsibility for the CF-18 and is positioned to do so again on future air fleet acquisitions. It is time for the Canadian Government to back Canadian industrial winners like the ISS industry for the fixed wing SAR procurement (the opportunity to make a business out of maintaining the Canadian C-130J fleet is marginal, especially since

Canada does not have the ability to license the IP to perform rest-of-world ISS). The time for action is now or Canada will forego the security and economic benefits that flow from a domestic role in ISS. The OEM can still provide ISS services during the warranty period but then ISS services should go out to tender with Canadian companies. There will of course be some sensitive new technology application areas where the OEM will continue to provide ISS services after the initial warranty period.

23) **Intellectual Property Rights**

Issue: In recent major acquisitions Canada has not acquired intellectual property rights that would allow for the long-term system support to be carried out in Canada.

Risk: Canadian industry is precluded from consideration to be the ISS contractor.

Action: In conjunction with the acquisition of the defence system, Canada, as a matter of policy, secure sufficient rights in Intellectual Property to ensure that the long-term support of the systems will be conducted in Canada.

IV CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

The identified issues and the analysis contained in this paper drew on the opinions of experts in industry and in government, and demonstrate that the current approach to defence procurement is sub-optimal. It is not effective enough in delivering results to DND, it does not manage risk effectively enough, and it does not respond to the full potential for industrial development in Canada.

Defence procurement suffers from a number of weaknesses that contribute to its ineffectiveness:

- The current approach has suffered a series of conflicts and failures that have bred a lack of trust between industry and government. Restoring trust must be the first priority if serious improvements to defence procurement are to be achieved;
- The current government practice of allocating all commercial risk to the contractor inflates project cost unnecessarily so that the completion cost is well above the initial estimate, and ultimately results in failure to fully deliver the intended results to DND; and,
- The experience of other countries has demonstrated that the development of a vibrant, competitive defence industry depends not only on open competition and indirect IRBs, but also the designation of critical and strategic industrial niches where sourcing will be from domestic industry (i.e. backing winners). Canada only does this for shipbuilding assembly and ammunition, an extremely narrow

industrial profile compared to other NATO countries. This increases the risk of failing to achieve national security objectives and/or failing to realize the full industrial and economic benefits potential from Canada's military investment program.

This paper has identified a number of ways to improve the effectiveness of the procurement process (e.g. earlier involvement of IC, PWGSC and industry) as well as a number of approaches for managing specific risk areas that would increase the overall effectiveness of defence procurement. Progress in implementing these improved approaches depends in part on convincing DND operations Chiefs that a more open, collaborative approach in the early stages of a project is in their interest, and convincing Treasury Board, Deputy Ministers and Chief Financial Officers that having government accept some types of risk is a more effective way to reduce overall risk and ensure that DND gets the equipment it needs.

Progress also depends on making fundamental improvements to the procurement process, to how the three departments and industry work together, and to the selection of project options, definition of requirements, and selection of procurement strategies in order to meet this challenge. How these relationships and processes are harnessed to make the required trade-offs, or more importantly, how win-win-win-win solutions are pursued and found, is the true great test of a successful defence procurement system. Industry can play an important positive role in helping government meet this test, provided there is a climate of mutual trust, and open communication throughout the process.

And so, improving defence procurement in these ways is a shared responsibility between government and the defence industry. Each side has an important role to play if a way can be found for them to work together in identifying and designing improvements.

Action to improve defence procurement effectiveness is urgently required given the fiscal constraints that will be imposed on the CFDS investment plan over the next few years.

B. RECOMMENDATIONS

These recommendations are staged as those that can be implemented immediately, and those that will require one year to implement.

Immediate (Fall, 2011)

Recommendation 1:

CADSI has already proposed that a Defence Industry Advisory Council be established that would report to government at the Ministerial level. Under the umbrella of that Council government and industry should form a small, informal government-industry discussion group composed of four senior government representatives at the ADM/DG level nominated by DMs and four senior industry representatives at the CEO/VP level nominated by CADSI, with a mandate to work together to deliver the following:

- A program to educate government officials on the defence industry and its methods, and to educate industry officials on the government and its methods;

- A transparent approach for identifying, discussing and recommending possible improvements to the defence procurement system and its processes that would benefit both parties (win-win); and,

- A study assessing the cost impacts of the current risk management approach of allocating all risks to the contractor.

The discussion group would report its findings to the DMs and Ministers of the three departments through the Defence Industry Advisory Council. The group would be co-chaired by one industry representative and one government representative and would be supported by a joint industry/government secretariat.

Recommendation 2:

Change the early stages of major defence procurement projects so that Industry Canada, PWGSC, and industry representatives participate with DND in assessing options to meet identified defence roles requiring new equipment. This new approach would build on the ACCORD Program but would be different in that it would represent the first phase of a specific major defence project. The common objective would be to find the best option for meeting DND's requirement, the most effective procurement and industrial development strategies, and to form a robust estimate of the cost of the project prior to project cost approval.

Short term (within one year)

Recommendation 3:

Implement the actions identified for the 23 risk management issues discussed in Section III of this paper. A number of these actions are already being implemented in Marine procurements but they have wider applicability. Early candidates for action include:

- Change the current ISS policy so that the initial prime contractor responsibility for ISS terminates with the warranty period and the remaining ISS contract is directed to a competition between Canadian companies. The 130-J and fixed wing SAR procurement would use this approach.

- Change the current policy approach on EPA and FEA so that government accepts these risks in major multi-year defence procurements and institute a revolving fund if necessary to finance possible incremental costs (or fund incremental costs from lapsing defence investment funds). Also, adjust current inflated liability requirements by bounding them to the total value of the contract, and adjust warranty requirements to levels typically demanded by other clients in the international defence market.

Recommendation 4:

Implement a new joint recruitment strategy at DND and PWGSC to build industry and engineering expertise within government. The strategy would:

- Hire new procurement officers with industry/engineering expertise;
- Seek two-way exchange secondments with defence industry companies; and,
- Engage retired government procurement executives with industry negotiation experience to participate as part-time advisors on defence procurement project teams.

Annex A CADSI 2009 Report on Military Procurement

Annex B CADSI Priorities for 2011

Annex C CADSI 2009 Report: Feedback from Industry Consultations