



BMT Fleet Technology Ltd.

Rendering of a concept design of the Canadian Surface Combatant Ship. On 20 January 2015, the federal government announced that Irving Shipbuilding in Halifax will be the prime contractor on the 15-ship Canadian surface combatant program.

Understanding Defence Procurement

by Charles Davies

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Introduction

There is a view in many quarters that defence procurement is 'broken,' or at least in need of significant reform, and various solutions have been proposed to fix it. There is also, however, a contrary view that defence procurement is functioning exactly as intended, with appropriate checks and balances in place to ensure proper consideration of operational, economic, industrial, social, political, and other relevant factors in decisions. Those who hold to this perspective say that any adjustments that may be required are incremental, and the current government is essentially taking this latter approach under its Defence Procurement Strategy.¹

Unfortunately, much of the debate is not well-informed about the fundamental nature of defence procurement, and how it forms an essential, integral element of the wider Defence Program. It is also not well understood that the problems typically highlighted by critics have two very different aspects: the quality of

decision-making within the procurement machinery; and the effectiveness and efficiency of the machinery itself. Both good and bad decisions can come out of either good or bad machinery, but experience suggests that bad machinery will tend to push an organization more frequently towards bad decisions than good, and will certainly make reaching and executing *all* decisions more difficult, time-consuming, and expensive.

This lack of awareness of machinery issues is perhaps understandable because Government of Canada (GoC) procurement mechanisms are an opaque mystery to most people, and even those working inside them can find them a bewildering maze. Nevertheless, understanding the machinery is key to any successful reform of defence procurement. Accordingly, the primary focus of this article is the machinery of defence procurement, with a view to encouraging a better informed discussion of how to improve outcomes.

To add further complexity, it is also necessary to begin the discussion by making a distinction between two major activities that come together in the execution of defence procurement: determining what capability or equipment will be acquired; and the acquisition process itself. Although these two things often run concurrently, and frequently intersect, they are, in fact, distinct processes involving different considerations. Much of the public debate tends to surround the first activity, challenging the basic requirement in the context of other national priorities, debating cost estimates, or challenging the selected solution. Although important, this is not where the real systemic problems are to be found. However, it is an appropriate point of departure for discussion.

Determining Requirements²

Nations have infinitely scalable options in terms of the defence capabilities they elect to acquire, maintain, and employ. They range from full combat capabilities across the air-land, maritime, cyber, and space environments, to the simple maintenance of domestic constabulary forces, or even no defence forces at all. Modern defence capabilities are invariably complex, and, once established, they require sustained investment to maintain. They are easy to lose, either by deliberate policy decision or through neglect, and very difficult and expensive to resurrect once lost. Governments and capability planners therefore must take a very long-term view when deciding which ones to *build and sustain*, and which ones to *eliminate*.

They receive plenty of advice on this from widely divergent sources with similarly diverse points of view. That advice reflects various levels of thought and analysis, from uninformed opinion, to well-researched, peer-reviewed academic studies. Ultimately, however, it is the government of the day that determines, in competition with other national priorities, its level of ambition for acquiring and maintaining defence capabilities.

Under the *National Defence Act*, the Minister of National Defence (MND) is responsible for deciding what equipment will be issued to the Canadian Armed Forces (CAF).³ In other words, the Minister *theoretically* has exclusive authority to define the requirement, and is the approval authority for the technical and operational aspects of a given procurement. *In practice* though, a number of other government decision mechanisms constrain this authority, and for major acquisitions the final decision on what equipment to buy will normally be taken by Cabinet on the basis of many considerations. Advice will, of course, be provided to ministers by military planners and departmental officials, but there may also be consultations with other interested parties and advisors. The current government has stated its intent to further strengthen the mechanisms supporting such wider deliberations in several ways, including establishment within DND of a third-party challenge function for military requirements.⁴ These broader inputs to decision-making reflect the fact that major defence procurements are always highly politicized.

The advice ministers receive from defence officials is developed within a Capability-Based Planning system⁵ grounded in a set of standard force planning scenarios that reflect what are considered to be the most likely range of military mission tasks over the planning period, given our current understanding of global and domestic trends.⁶ These scenarios are developed and maintained by the Chief of Force Development in consultation with academic, scientific, policy, and military experts. They are used to support analysis of the relative value of potential investments in maintaining, updating, or acquiring defence capabilities (i.e., is ‘Capability A’ of greater value across a range of mission scenarios than ‘Capability B’?) Not surprisingly, given the relatively small size of the CAF and many different kinds of possible future mission tasks, multi-role platforms will often be considered to provide the most cost-effective solutions for Canada.

DND’s Capability-Based Planning process is still maturing, and it will continue to evolve over time.

In addition to the application of the professional judgement of experienced CAF commanders and staff to its requirements analysis, DND tries to assure rigour and objectivity in its methodology by applying advanced Operations Research tools and a comprehensive and growing simulation capability to it, particularly for major platforms. These tools are continuing to develop in sophistication as the supporting technologies mature and lessons are learned from the operational and acquisition program experiences of Canada and other nations.

Finally, and despite what may seem to be implied in recent controversies surrounding certain acquisition programs, DND also takes a comprehensive approach to determining the cost of acquiring and sustaining defence capabilities in order to assure their long-term affordability within the assigned budget envelope, which is not infinite.⁷ The requirement to determine the full life cycle costs of any proposed acquisition is mandated by Treasury Board,⁸ and it is well established in departmental policy.⁹ The policy is supported by a number of guides and manuals¹⁰ designed to assist project sponsors in preparing sound, defensible estimates to support decision making. Here again, DND continues to refine and strengthen its costing policies and mechanisms.

Notwithstanding the very significant effort DND makes to put objective, fact-based foundations under its requirements analyses and recommendations, it remains an imperfect science because it is a forward-looking process, and the future can never be accurately predicted. Also, there will always be many views on what the future will hold, and precisely what defence solutions will be needed. These views are shaped by diverse individual experiences, interests, and perspectives. Consequently, Canadian governments

will never have unanimous support for their decisions on major defence capability acquisitions. No Western nation ever does.

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Defence Materiel Context

Defence procurement is an important strategic Government of Canada activity that is, nevertheless, but one component of a broader program designed around the support of military operations and the full end-to-end life cycle management of defence materiel assets. As defined in the *Treasury Board Policy on the Management of Materiel*, life cycle management is the “... effective and efficient management of assets along the entire continuum from the identification of a requirement to the disposal and replacement of the asset acquired to meet the requirement. The phases of life cycle management include assessing requirements; analyzing options; planning acquisition; acquiring; operating, using, and maintaining; and disposing and replacing.” The objective of the policy is “...that materiel be managed by departments in a sustainable and financially responsible manner that supports the cost-effective and efficient delivery of government programs.”¹¹

A key tenet of the policy is that decisions are taken on the basis of a whole-life view of the equipment, and full life-cycle cost implications are properly considered right from the point of planning for the acquisition. The intent is to avoid making decisions, based upon a primarily short-term view. For example, what might be considered a good decision in an acquisition project to adopt a particular technical solution that enables the system to be delivered on time and on budget could be a bad decision from a full life cycle perspective if another solution with higher up-front costs would have been significantly cheaper to operate, and thus, had a lower lifetime cost of ownership.

The *Policy on the Management of Materiel* is especially important to DND as its defence materiel business represents a large, core element of the Defence Program. It is also important to the government as DND is its largest materiel manager. The Department manages over \$50B worth of machinery, equipment, and vehicles of all types (including ships and aircraft), representing some 74 percent of the Federal Government total, and \$6.5B worth of inventory, representing 87 percent of the Federal Government total.¹²

If DND fails in its management of materiel assets, the impact upon Canada's public accounts is enormous.

While for most government departments and agencies, the acquisition and management of materiel is an Internal Service (meaning an enabler to the conduct of business rather than a core element of it), in National Defence that is not the case. The Defence Program is designed around delivery of a number of specific outcomes for Canada that are unique to DND and the CAF:

- The Provision of sound **advice** to the government on defence policies, capabilities, and potential CAF missions;
- The Creation and sustainment of **defence capabilities** in accordance with defence policy and government direction;
- The insurance of appropriate states of **readiness** of those capabilities, consistent with government direction and allocated resources; and
- On order, the undertaking of **missions** with those capabilities, including establishing the conditions necessary for mission success.¹³

Defence capabilities, in turn, comprise varying combinations of four core elements that must be present in appropriate balance and fully integrated in order to deliver any meaningful strategic, operational, or tactical effects. These are:

- **Personnel** (primarily, but not necessarily exclusively, CAF Members), including their recruitment, training, organization, management, and care;
- Major defence **equipment**, such as ships and aircraft, as well as other equipment, information systems, supplies, and services needed by the CAF to conduct operations and to train to be ready for those operations;

- Essential defence **infrastructure** needed for operations, readiness, and training, such as dockyards, airfields, and training facilities; and
- Military **doctrine** and the professional body of military knowledge required to knit the other elements together into effective force elements; to plan and command assigned operations; to adapt quickly to changes in operational, technological, geopolitical, or other conditions; and to sustain the nation's defence institution over the long term.¹⁴

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Thus, equipment and its life-cycle management, including its acquisition, is a core element of the Defence Program, virtually equal in importance for most defence purposes to the recruitment and training of CAF personnel.

Defence equipment is managed within DND in a holistic end-to-end Equipment Program Management framework developed over several decades and designed specifically for the unique needs of the CAF. The framework

is, of necessity, more similar to those of other Western defence organizations than other departments of the Government of Canada. Its business processes reflect a number of international standards, notably the *NATO Policy for Systems Life Cycle Management* and its associated implementation guides, and *ISO Standard 15288 System and Software Engineering – System Life Cycle Processes*, upon which the NATO policy is built.

Defence Procurement

Within this broader materiel management context, defence procurement is the process of acquiring equipment, supplies, and services for the purpose of delivering defence capabilities, and for sustaining them throughout their service existence, including during operations. Essentially, defence procurement is a recurring ‘do-loop’ in the life cycle management of materiel and the wider operations of DND and the CAF. As such, it is a mission-critical enabling process that needs to be very well integrated with those wider functions.

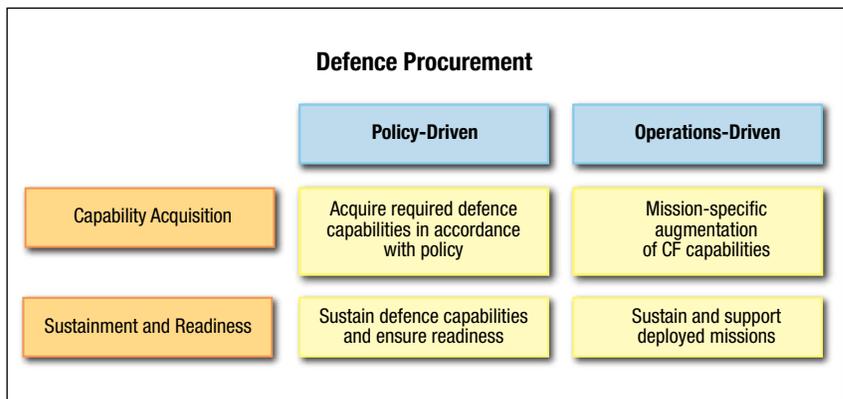


Figure 1

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All GoC procurement is required to be "... conducted in a manner that will meet operational requirements in the most cost-effective manner and provide equal opportunity to tender..." and is further expected to be "...consistent with and supportive of such national objectives as industrial and regional development, aboriginal economic development, the environment and other approved socio-economic objectives."¹⁵ In order to achieve these multiple objectives, Treasury Board requires that most acquisitions over \$2M be reviewed in advance and approved through interdepartmental procurement review processes.¹⁶ All significant defence procurement is therefore subject to review and challenge by various departments, each looking at the file from different perspectives and with different views about how the competing priorities should be balanced. While most files proceed relatively quickly through this review process, when disagreements between departments do arise, there is no effective mechanism for promptly resolving them, and no approved Government of Canada defence industrial strategy to guide deliberations.¹⁷ Some procurements can therefore be considerably delayed while acceptable compromises are worked out among the departments.

Most of the public debate around defence procurement gives the impression that it is a fairly homogeneous activity focused upon major platform acquisitions, but in reality, it is not. It involves much more than the acquisition of hardware, and it is driven by different requirements in response to widely differing circumstances, as illustrated in Figure 1.

Policy-driven procurement is generally deliberately planned in an atmosphere where there is time to fully consult interdepartmentally and consider how best to obtain optimum national benefit from each major expenditure. The procurements most people focus upon tend to be policy-driven equipment acquisitions and their

accompanying long-term in-service support contracts. Mostly hidden from view are tens of thousands of smaller purchases of goods, services, and construction projects.

Operations-driven procurement, particularly that undertaken to meet immediate mission support needs, is different. It has to be executed quickly if operations are to be successful, and imperfect solutions delivered *on time* are usually vastly preferable to perfect ones delivered *late*.

Unfortunately, processes designed for high-profile, politically sensitive, policy-driven procurements are not well-suited to prompt and efficient processing of smaller routine acquisitions, and hard experience in a number of CAF operations has shown that they can be a major hindrance to rapid execution of operationally-urgent purchases. The routine machinery of government procurement is simply not designed with military operations in mind.¹⁸ Accordingly, defence procurement needs different approaches to meeting different requirements in different situations.

The approach to managing procurement risk also needs to vary. Normal policy-driven procurements carry with them, by and large, risks that are similar to most other government purchasing: financial, political, process, program, technology, and so on. Operations-driven procurements carry all of those and frequently others, such as risk to life, limb, health, security, and potentially, even *mission success*. The consequences of failure in a deployed mission can be catastrophic at a number of levels: political, diplomatic, and national security, to name but a few. While it may be unlikely that a single procurement delay or failure would trigger such a major consequence, the cumulative impact of recurring poor procurement outcomes will inexorably increase these risks.

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DND photo FA2012-1007-01-crop/RCAF

The CC-177 *Globemaster III* project is one of a number of defence procurements that have been completed on time and on budget. A fifth CC-177 was recently purchased to augment the fleet downstream.

DND photo HS2-2012-138-005 by Corporal Rick Ayer



Major defence programs have long lives. The *Halifax* Class frigates will likely be nearly 40 years old by the time they are retired.

An added challenge in defence procurement is the technological complexity of many defence systems and the consequent cost and difficulty of developing, producing and operating them. This has significant implications for how some procurements are managed. Depending upon where a system is in its development cycle, program costs may be very easy or very difficult to accurately define. The cost and delivery schedule for a mature system already in service with one-or-more nations can usually be very precisely determined, and contracting for the acquisition can be done very quickly. This was the case, for example, with the acquisition of four C-17 strategic airlifters which was completed on time and on budget within 18 months of the decision to purchase.¹⁹

On the other hand, if a system is still in development or requires significant non-recurring engineering work to adapt or modify, very different, risk-managed, approaches are required. Projects of this kind typically go through a number of phases, with major decision ‘gates’ at the end of each. This may include: a *pre-definition* phase, where multiple concepts or technologies are evaluated; a *definition* phase, where options are refined, technology, program, or other risks are resolved, and the preferred solution identified; and an *implementation* phase, where the selected option is delivered. Final program cost estimates and delivery schedules cannot realistically be determined until the end of the definition phase, and even then, it may be prudent to earmark significant contingency funding in the implementation phase to address residual risks and unexpected issues. With respect to these projects the purchaser almost invariably has to *shoulder*, or at least *share*, the inherent risk burden with the supplier if the capability is going to be successfully delivered.

Defence procurement is also done across highly diverse marketplaces. Complex weapons, such as combat aircraft, are developed and produced in relatively small numbers by a very few suppliers because of the large and sustained technology investments required. These systems also have very long service lives, so sales

opportunities are relatively few and far between. As a result, there is a continuing long-term global trend of consolidation in industries producing advanced low-volume, high-cost defence systems. Manufacturers are also increasingly protective of the Intellectual Property they generate through their investments, and they are continuously looking for ways to extract greater value from it over the service life of the equipment. This can have a significant long-term impact upon in-service support strategies and costs.

At the same time, National Defence is also a buyer of standard products available in very competitive high-volume, low-cost marketplaces, for example, office supplies, construction materials, or commercial vehicles. Procurement of these kinds of products lends itself very well to simplified buying processes, and significant volume price benefits may be achievable through the use of common department-wide or government-wide purchasing mechanisms.

Finally, defence procurement is unique in government in terms of the sheer volume of business. In addition to the tens of thousands of small procurements it executes itself annually under delegated authorities, National Defence also processes tens of thousands of procurement transactions with its primary Common Service Organization, Public Works and Government Services Canada (PWGSC), each year. These include: contract requisitions; contract Task Authorizations; requests to establish Standing Offers, Supply Arrangements, and other instruments; and many other transactions. DND alone represents roughly half of the business of PWGSC’s Acquisitions Branch, and no other department comes close to its procurement volumes.

At a number of levels, then, defence procurement has conditions, requirements and characteristics that are unique in government and “one size fits all” processes cannot be universally effective in meeting them all.

Legal, Policy and Program Frameworks

By statute, defence procurement is a Government of Canada activity involving many departments and agencies. Their respective roles are specifically defined in legislation, in particular:

- Section 10 of the *Defence Production Act*, which gives the Minister of Public Works and Government Services exclusive authority to buy or otherwise acquire “defence supplies”²⁰ on behalf of the Government; and Section 12 of the same *Act*, which gives the Minister responsibility for managing Canada’s defence industrial capabilities;
- Section 36 of the *National Defence Act*, which gives the Minister of National Defence exclusive authority to determine defence equipment requirements; and Section 4 of the same *Act* which gives the Minister responsibility for the management of defence resources, programs, and operations;
- Section 7 of the *Financial Administration Act*, which gives the Treasury Board wide powers to define Government administrative policies, set limits on ministers’ authorities, and oversee departmental programs and plans; and
- Section 4 of the *Department of Industry Act*, which gives the Minister of Industry responsibility in areas such as industry, technology, science, intellectual property, and small business, all of which have direct and indirect connections to defence procurement.

It is notable that Parliament has defined separate legal authorities for procurement of non-defence and defence goods. Both authorities are exclusively assigned to the Minister of Public Works and Government Services, but acquisition of non-defence goods is conducted under the *Department of Public Works and Government Services Act* and acquisition of “defence supplies” is done under the *Defence Production Act*, which also uniquely confers significant powers on the minister to set contract terms and define the business relationship between defence contractors and the Crown. However, those powers are only rarely used, and at the structural level, the same standard policies and business processes tend to be applied to all Government of Canada procurement. Also, within PWGSC, Industry Canada and Treasury Board Secretariat the same structures execute both defence and non-defence acquisitions interchangeably, albeit with certain parts of each organization perhaps having more of a focus on one than the other. The government’s 2014 Defence Procurement Strategy does not introduce any significant changes to this standardized business approach.

The various players are connected through a number of interdepartmental bodies supporting procurement-related policy consultations and coordination of government-wide initiatives.²¹ There are also bodies that facilitate collaborative management of specific procurements²² and there is the previously mentioned interdepartmental procurement review framework. However, end-to-end control of the government’s procurement machinery – the regulating of its overall throughput and the management of system performance – has no formal mechanisms.²³ What

integrated system management can be said to exist is a largely organic, informal framework of bilateral and multilateral relationships among individuals at many levels.

How Canada evolved to this business model is worth a short exploration.

Historical Background

The current machinery for defence procurement evolved from a Cold War construct set up in the 1950s by officials who had very recently guided the country through the Second World War. For Canada, like its allies, the war had been fought as a total national effort, personally led by the Prime Minister and his Cabinet, in particular, his War Cabinet of key ministers. There were several ministers responsible for different aspects of the National Defence portfolio,²⁴ but their focus was the gargantuan task of recruiting,

Jack Long/National Film Board of Canada. Photothèque/Library and Archives Canada/PA-112908



Canada’s wartime experience influenced the Cold War approach to defence procurement. Defence Industries Limited worker Edna Poirier presents the Honourable C.D. Howe the 100,000,000th projectile manufactured at the Cherrier plant in 1944.



CFJIC photo PC-2239

As some have suggested, the shutting down of the national dream. The Avro Arrow, while in many ways sophisticated and innovative, was doomed to become an expensive defence procurement non-starter as an indigenous advanced jet fighter interceptor in 1958.

organizing, and training enough men (and women in more limited numbers) for the large naval, land, and air forces Canada had committed to field. There was no possibility of their also managing the even greater task of marshalling the nation's industrial, agricultural, and other resources to produce the volumes of equipment and supplies needed to be able to fight and win. That was a task assigned to several other ministers, coordinated by the Minister of Munitions and Supply, C.D. Howe.

With the start of the Cold War, many of the politicians and senior officials who had engineered victory in the Second World War were still in government, and when faced with the need to re-arm the country again, they adopted a model derived from the one that had been successful previously. The *Defence Production Act* came into effect in 1951. It established the Department of Defence Production with broad powers to oversee the Cold War rearmament of Canada, and to organize and manage the national defence industrial base, which then included substantial Crown-owned and private sector factories and other installations producing everything from warships and combat aircraft to ammunition. C.D. Howe, who had overseen Canada's massive wartime production effort, was the first Minister of Defence Production.²⁵

However, the Cold War was not the Second World War, and the magnitude of the effort undertaken by Canada was much more modest. It became even more so over the years as a 'shooting war' threatening Canada's interests seemed less and less likely, and successive governments determined that there were other priorities for the nation's energies and resources. At the same time, the very form and functioning of the Federal bureaucracy came under review on multiple occasions as the changing exigencies and expectations of a modernizing society required new responses from government.

In 1963, with the main rearmament effort largely completed, the Minister of Industry assumed the powers of the Minister of Defence Production.²⁶ This practice remained in place until 1968, when a separate minister was again appointed²⁷ in the context of a significant transformation of government at the end of the 1960s. Under this restructuring, in 1969, the Department of Defence Production was disbanded, and in its place, but still with the full powers of the *Defence Production Act*, the Department of Supply and Services was created,²⁸ bringing defence and non-defence government procurement under the same umbrella.

**Defence Expenditures (\$B) 1974-2014
(2011 Constant Year Dollars)**

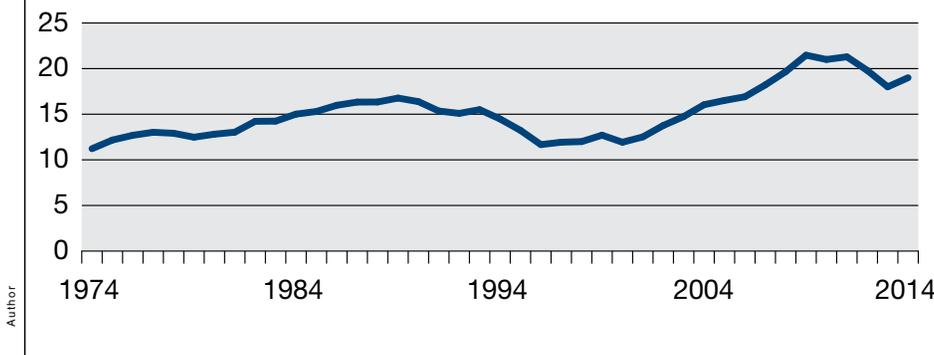


Figure 2

By 1987, the Government had divested itself of its last Crown-owned manufacturing facilities with the privatization of Canadian Arsenals Ltd.²⁹ In 1993, the Department of Supply and Services and the Department of Public Works were administratively merged.³⁰ The merger was formalized in law in 1996 with the coming into effect of the *Department of Public Works and Government Services Act*.

The long transition from the post-war Department of Defence Production, through its temporary alignment with the Department of Industry, and then full merger with what is today PWGSC, mirrored the long and gradual process of reducing the size and capabilities of the CAF, the defence industrial capabilities of the nation, and the relative scale of Canadian defence acquisitions.

The 1990s were marked by the introduction of substantial cuts in defence spending in Canada and among our allies. In 1989, Canada's defence budget was \$12B.³¹ Due to a multitude of factors, including a burgeoning federal debt crisis, between 1990 and 1998, the government reduced DND's funding by 33 percent. Proportionately, it was then the largest defence budget reduction experienced by any NATO nation,³² and it had a debilitating effect upon DND and the CAF. As the Department focused all the resources it could upon maintaining core military capabilities, while at the same time conducting a number of significant overseas operations, new defence acquisition programs were slashed. For nearly a decade, few major complex procurement programs ran, and this, combined with the encouraged departures of large numbers of experienced project managers and procurement specialists, stripped DND of much of its capacity to manage complex acquisitions.

All this changed on 11 September 2001. Following 9/11, it was clear that a significant reinvestment was required, and successive governments have continued to spend significantly on defence. DND,

in turn, has worked hard to rebuild its capacity to manage complex acquisitions. As illustrated in Figure 2, even through the global financial crisis of 2008 and the subsequent recession, Canadian defence budgets, although not untouched, have been maintained at their highest levels in decades.³³ Coupled with the adoption across government of accrual funding for major capital acquisitions,³⁴ this is providing far more resource flexibility than National Defence has had at any time since the early Cold War. While future governments may reverse the past decade's overall growth in the defence budget, defence procurement is clearly going to remain a significant Government of Canada business activity for the foreseeable future, and the present government has made implementation of its Defence Procurement Strategy a priority.

Current State of Defence Procurement

For some time now, in the face of a significantly expanded defence acquisition program, all of the departments involved in the process have struggled to meet government, Parliamentary, industry, and public expectations for agility and responsiveness in procurement. Consequently, criticism has continued to mount. At the same time, there is a renewed focus on integrity and accountability in government. With the passing of the *Federal Accountability Act* in 2006, Parliament and the government set out strong expectations for openness, transparency, auditability, and accountability. Unfortunately, both the expectations for greater responsiveness, and the demand for greater accountability are difficult to meet in defence procurement, given the legal and institutional complexity Canada has established around it. The multiplicity of Ministerial points of authority complicates process, and it inherently disperses accountability. It also invites a high degree of variability in the business interactions among the players, meaning that individual procurement outcomes often tend to be more dependent upon personalities and relationships than upon any common, consistent interdepartmental business processes. The absence from the business model of an effective system-level performance management framework further obscures accountability, undermines effective oversight, and makes it difficult to discipline the execution of transactions, or identify and fix the true sources of procurement delay and poor outcomes.

Many commentaries, studies, and reports of varying quality have been written on defence procurement over the past two decades, from both outside and inside government.³⁵ All have identified problems of some kind with the current model. In addition,

“The multiplicity of ministerial points of authority complicates process, and it inherently disperses accountability.”

both the Auditor General and DND internal auditors have publicly documented many specific procurement-related issues, pointing to problems with the basic machinery.³⁶ While none of these reports has comprehensively examined the problem from end-to-end, in aggregate, they clearly make a case for change of some kind. The current government's response to this is its Defence Procurement Strategy. Although primarily aimed at industrial outcomes, the strategy does include a few measures aimed at trying to make the existing business model work more effectively. However, it very much remains to be seen whether these will have substantive effect.

A number of other Western nations have undergone systemic reform of their defence materiel management programs in recent years, including the procurement function. Most have adopted models that integrate equipment acquisition and support within an end-to-end full life cycle management process framework, consistent with the international best practices reflected in the *NATO Policy for Systems Life Cycle Management* and *ISO Standard 15288 System and Software Engineering – System Life Cycle Processes*.

The experience of two countries with deep historical and cultural ties to Canada is of some interest. Creation of the Australian Defence Materiel Organisation and the UK Defence Equipment & Support Organisation within their defence institutions has proven to be a significant undertaking for both nations. Their experience demonstrates that this kind of transformation takes time, perhaps a decade, to fully implement and optimize.³⁷ Further, it shows that the creation of a single organization responsible for the acquisition and whole-life management of defence equipment does not, by itself, guarantee program success or alter the fact that the selection, acquisition, and management of defence capabilities is a government-level responsibility. The model does, however, recognize that defence equipment is a core element of military capability that is virtually equal in importance to military personnel. It also provides a framework for enabling governments to more readily standardize and optimize business processes, systems, tools and training; and for ensuring that consistent approaches are applied to meeting wider national policy objectives – in other words, for getting the machinery right. It does this by institutionalizing two important measures:

- Recognizing at the government level that the procurement and life-cycle management of common commodities and defence-unique systems are very different functions, the latter requiring the adoption of purpose-designed, integrated business machinery aligned to defence capability management and operations; and
- Establishing a single point of accountability and authority for the procurement and life cycle management of defence materiel. This includes responsibility for ensuring that: a full-life view is applied to all spending decisions; there is ongoing standardization and continuous

“We need to be sure that in making changes we are fixing the right problem, and that we get the basic machinery right level.”

improvement of end-to-end policies, processes, systems and tools; effective performance management is implemented; appropriate supporting defence industrial strategies and capabilities are developed and maintained; wider government objectives are respected; and government oversight is strengthened.

Interestingly, Canada has recently adopted a model very similar to this for the management of Federal Government IT systems. Shared Services Canada has been given full end-to-end responsibility for acquisition, life cycle management and operation of common IT hardware and software, including responsibility for procurement.³⁸ This is presumably in recognition of the fact that the procurement, operation, and life cycle management of IT systems is a unique business, and perhaps, reflective of a desire to establish clear accountability for delivering an important Government of Canada capability.

The government has chosen a very different approach for defence materiel. Its Defence Procurement Strategy maintains the institutional segregation of the procurement function, and indeed, it contains no mechanisms for strengthening the critical relationship between procurement on the one hand and military operations and the effective life-cycle management of defence equipment on the other.³⁹ It remains to be seen whether the strategy can answer the many criticisms of how defence procurement is done in Canada.

Conclusion

Defence procurement is subject to a number of complex and largely immutable factors, irrespective of the business model adopted. These include:

- The inevitably controversial nature of many defence requirements;
- The centrality of materiel to defence capabilities and consequent need to seamlessly connect procurement to equipment life cycle management, the force generation of integrated capabilities, and the conduct of operations;
- The diversity of defence needs and operational circumstances;
- The unique risk profiles of many defence procurements;
- The technological complexity of many systems;
- Marketplace diversity; and
- The business volumes involved.

While the context and basic nature of defence procurement may be inherently complex, it does not necessarily follow that the governing legislative and policy framework, or the business machinery, have to be so. The current Canadian model certainly is, with its multiple points of ministerial accountability, but that alone does not establish a case for change. The case is to be found more in the considerable objective evidence, including recurring audit reports,

that there are indeed problems with the fundamentals. There is also wide public belief that the system is not working well, but the issues that come to public attention and fuel that belief are not necessarily representative of the whole business of defence procurement. We need to be sure that in making changes we are fixing the right problem, and that we get the basic machinery right.

In reviewing the success or otherwise of the Defence Procurement Strategy, and determining whether further incremental or substantial change is needed, the government and Parliament will need to consider two basic questions:

- Which business model is most inherently biased towards effective and efficient decision-making, management and control; effective delivery; continuous improvement; and consistent, successful response to the full range of conditions and requirements of military operations? In other words, which model gives Canada the best basic machinery to support good decision-making and reliable program execution; and
- Which model will most consistently enable timely and sound government decisions concerning the optimum balance among national policy objectives, including: maintaining appropriate defence capabilities; obtaining best value; and obtaining desired social, economic, commercial, and industrial effects from defence spending?

The real challenge is “getting it right the first time.” If we look to other Western middle powers that have faced the same questions, most have chosen a model that establishes a single point of accountability and authority for integrated management of defence procurement and the full life cycle support of equipment within their defence institutions, often overseen by a specific minister within the defence portfolio. No nation has reached the level of excellence in delivery it wants, but most of the organizations concerned are still maturing and dealing with significant legacy issues, so the jury is still out. The new Shared Services Canada model resembles this end-to-end approach, and it will be interesting to see how well it succeeds. Conversely, the government’s Defence Procurement Strategy represents a very different view of both the problem and the solution, and only time will reveal how successful it will be.

The objective of this article was not to advocate for a particular solution, but rather to explain the wider context of defence procurement and describe its underlying machinery with a view to



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The most up-to-date rendering of the Arctic Offshore Patrol Ship (AOPS). On 16 January 2015, the federal government signed a contract with Irving Shipbuilding to manufacture five-to-six AOPS at a total cost of \$3.5 Billion.

encouraging a better informed debate. In exploring the business environment, it has been difficult to avoid identifying obvious problems with the current model, and looking at least superficially at how other nations do the function, but these explorations have been incidental to the main discussion.

Whether Canada chooses to stay with the modified *status quo* as represented by the 2014 Defence Procurement Strategy, adopt a model similar to what some other nations are doing, or choose another path entirely, it is important that the decision be grounded in a good understanding of the context within which defence procurement is conducted and the many complex factors affecting it. Further, any new machinery built to manage the function must be designed with a clear understanding of the true weaknesses of the existing model, and based upon a coherent concept that does not see procurement as a discrete activity, but one that is integral to the conduct of military operations, the maintenance of ready defence forces, and the efficient and effective life-cycle management of defence systems and capabilities – including the support of an appropriate defence industrial base. Finally, both those who argue that the current system is broken and those who say that it is functioning exactly as intended need to anchor their cases, and any proposed changes, on the many complex foundational underpinnings of defence procurement, not just its publicly visible superstructure.



NOTES

1. Government of Canada press release 5 February 2014, and speeches by the Minister of National Defence and the Minister of Public Works and Government Services to the Economic Club of Canada the same day, and subsequent occasions.
2. For a complete description of DND's capability based requirements planning process, see Department of National Defence (2010). *Capability Based Planning Handbook Version 6.2*. (Unnumbered Chief of Program publication).
3. *National Defence Act*, Section 36.
4. Department of Finance (2013) *Budget 2013*. Page 108; and Government of Canada press release 5 February 2014.
5. See the *Capability Based Planning Handbook*.
6. See Department of National Defence (2009). *The Future Security Environment 2008-2030, Part 1: Current and Emerging Trends* (Unnumbered Chief of Force Development publication).
7. DND's costing practices have been externally examined in depth on several recent occasions and found to be generally sound. See KPMG report *Next Generation Fighter Capability: Independent Review of Life Cycle Cost*, dated 27 November 2012; and Raymond Chabot and Grant Thornton. *Independent Review: 2013 Department of National Defence Annual Update on Next Generation Fighter Capability Life Cycle Costs – Final Report* dated 5 August 2013. Both publications accessible at <http://www.tpsgc-pwgsc.gc.ca/app-acq/stamgp-lamsmp/cycle-eng.html>.
8. Treasury Board of Canada. *Policy on Investment Planning – Assets and Acquired Services*. Accessible at: <http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=18225§ion=text>.
9. Department of National Defence (2011). *Project Approval Directive 2011-2012*, (Unnumbered Chief of Program publication), Chapter 8.
10. i.e., Department of National Defence (2013). *Cost Factors Manual 2013-2014*, (Unnumbered Assistant Deputy Minister (Finance and Corporate Services) publication); and Department of National Defence (2006). *Costing Handbook* (2nd edition) (A-FN-007-000/AF-001).
11. Treasury Board of Canada. *Policy on the Management of Materiel*. Accessible at: <http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=12062>.
12. Data extracted from the *Public Accounts of Canada 2013*. Accessible at <http://www.tpsgc-pwgsc.gc.ca/recgen/cpc-pac/index-eng.html>.
13. Derived from information contained in Department of National Defence (2013). *Report on Plans and Priorities 2013-14*. Accessible at http://www.forces.gc.ca/assets/FORCES_Internet/docs/en/DND-RPP-2013-14.pdf.
14. These elements of capability are described here in a manner that is different from what appears in *DND's Program Alignment Architecture* and annual reports to Parliament because those documents are primarily focused upon resource commitments and expenditures. The maintenance of professional knowledge within DND and the CAF, although a critical and indeed defining element of defence capability, does not involve major direct expenditures, and so is not accorded significant mention in financial plans and reports.
15. Treasury Board of Canada. *Procurement Review Policy*. Accessible at: <http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=12074§ion=text>.
16. *Ibid.*
17. The recent government decision to adopt the "Jenkins Report" approach to implementing a framework of Key Industrial Capabilities as part of its Defence Procurement Strategy does not materially address the lack of a defence industrial strategy. See Public Works and Government Services Canada (2013). *Canada First: Leveraging Defence Procurement Through Key Industrial Capabilities* (Government of Canada Catalogue No. P4-52/2013E, ISBN 978-1-100-21762-8).
18. For example, Public Works and Government Services Canada has set its service standard for awarding contracts valued between \$400,000 and \$1,000,000 at 100 working days from receipt of the requisition from the client department. It aims to meet that standard 80 percent of the time. Procurement service standards are accessible at: <http://www.tpsgc-pwgsc.gc.ca/sc-cs/nsnnsr-ossr/2014-2015/page-4-eng.html>.
19. National Defence *Departmental Performance Report for the Fiscal Year Ending March 31, 2008*. (Government of Canada Catalogue No. BT31-4-50-2008-eng.pdf), Page 38.
20. The term "defence supplies" as defined in the *Defence Production Act* essentially means all goods purchased for defence purposes, up to and including major platforms, such as ships and aircraft.
21. i.e., the Treasury Board Advisory Committee on Contracting, and PWGSC's Client Advisory Panel.
22. i.e., the Major Crown Project Interdepartmental Oversight Committee, the PWGSC-led Defence Procurement Secretariat and the ministerial and Deputy Minister working groups on defence procurement.
23. The new Defence Procurement Secretariat in PWGSC could be an enabler for some future development of a wider performance management framework but it currently has no mandate to do so.
24. Minister of National Defence, Associate Minister of National Defence, Minister of National Defence for Air, Minister of National Defence for Naval Services. *Privy Council Office Guide to Canadian Ministries Since Confederation*. Accessible at: <http://www.pco-bcp.gc.ca/mgm/lst.asp?lang=eng&=1>; Sixteenth Ministry.
25. *Ibid.*, Seventeenth Ministry.
26. *Ibid.*, Nineteenth Ministry.
27. *Ibid.*, Twentieth Ministry.
28. *Ibid.*
29. *Canadian Arsenal Limited Divestiture Act*.
30. *Privy Council Office Guide to Canadian Ministries since Confederation*, Twenty-Fifth Ministry.
31. Department of Finance (2013). *Fiscal Reference Tables*. Accessible at: <http://www.fin.gc.ca/frt-trf/2013/frt-trf-13-eng.asp>.
32. House of Commons Standing Committee on National Defence and Veterans Affairs (2000). *Procurement Study*. (Government of Canada catalogue No. XC34-362/1-1-0).
33. Data for Figure 2 was extracted from several sources: Department of National Defence (2011). *Making Sense out of Dollars*. (Unnumbered Assistant Deputy Minister (Finance and Corporate Services publication). Ottawa; National Defence *Report on Plans and Priorities 2013-2014*; Department of Finance *Fiscal Reference Tables*; and Statistics Canada. (2013). *Consumer Price Index, historical summary* Accessible at: <http://www.statcan.gc.ca/tables-tableaux/sum-som/101/cst01/econ46a-eng.htm>.
34. Acquisition costs are amortized over the intended service life of the system. The Department of Finance advances capital funding to DND at the time of purchase, and DND repays the money in instalments year-by-year.
35. See, among others, the Standing Committee on National Defence and Veterans Affairs (2000) *Procurement Study*; Accessible at: <http://www.parl.gc.ca/HousePublications/Publication.aspx?DocId=1031734&Language=E&Mode=1&Parl=36&Ses=2>; House of Commons Standing Committee on National Defence and Veterans Affairs (2008). *Report on Defence Procurement and Associated Processes*. Accessible at: <http://www.parl.gc.ca/HousePublications/Publication.aspx?DocId=3240298&Language=E&Mode=1&Parl=39&Ses=2>; Canadian Association of Defence and Security Industries. (2009). *Industry Engagement on the Opportunities and Challenges Facing the Defence Industry and Military Procurement*; Public Works and Government Services Canada (2013). *Canada First: Leveraging Defence Procurement Through Key Industrial Capabilities*. For a wider critique of government procurement, see Public Works and Government Services Canada (2005). *Report of the Parliamentary Secretary's Task Force: Government-Wide Review of Procurement*. (Government of Canada Catalogue No. P4-10/2005 0-662-68900-3).
36. See, among many others, Auditor General of Canada (2009). *2009 Fall Report of the Auditor General of Canada, Chapter 5*. (Government of Canada catalogue No. FA1-2009/3-5E-PDF); Department of National Defence (2011). *Internal Audit of Contract Terms of Payment*. (Chief of Review Services No. 7050-52); and Department of National Defence (2010). *Internal Audit of Subcontract Visibility*. (Chief of Review Services No. 7050-49).
37. For a sense of the complexity involved, see B. Grey, (2009). *Review of Acquisition for the Secretary of State for Defence, an Independent Report by Bernard Grey*. Accessible at: <http://webarchive.nationalarchives.gov.uk/20120913104443/http://www.mod.uk/NR/rdonlyres/78821960-14A0-429E-A90A-FA2A8C292C84/0/ReviewAcquisitionGrayreport.pdf>; and Department of Defence, Australia (2008). *Going to the Next Level, the Report of the Defence Procurement and Sustainment Review*. (Defence Materiel Organisation ISBN No. 978 0 642 29688 7).
38. *Budget 2013*. Page 264; and Shared Services Canada *Integrated Business Plan 2013-2014*. Accessible at: <http://www.ssc-spc.gc.ca/pages/ibp-pai-2013-2014-eng.html>.
39. See the Government of Canada press release of 5 February 2014, and speeches by the Minister of National Defence and the Minister of Public Works and Government Services to the Economic Club of Canada the same day, and subsequent occasions.