



Silver Dart

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Aerospace Considerations and Canada's "New" Defence Policy

James G. Fergusson

Executive Summary

Despite the rhetorical priority assigned to National/North America defence and security, primacy is actually centered upon the development of a land-centric expeditionary military intervention capability to contribute effectively to international coalitions, and possibly to operate in a lead, if not independent role overseas. Aerospace capabilities and the Air Force (as well as the Navy) are primarily assigned a support role for overseas missions, with its chief defence mandate being Canada and North America.

In focusing upon 'boots-on-the-ground,' the Defence Policy Statement (DPS) is consistent with government pronouncements that establish the goal of restoring Canadian influence and effectiveness on the world stage by contributing to the 'war on terror' and confronting the problems created by failed or failing states facing the international community and its inhabitants. However, this focus not only represents the longstanding bias in Canadian defence, it also serves to perpetuate the priority of the international over the national and downgrades the significant contribution that extant and future aerospace capabilities can make to National, North American and International defence. In particular, the DPS indicates

- An attempt to maintain two relatively distinct force structures (a National/North American and International one) despite the reality of limited resources at the cost to either or both in terms of capabilities;
 - Investment priority will likely remain with expeditionary or intervention capabilities even though most of these overseas missions are discretionary in nature;
 - Overseas mission capabilities continue to provide the basis for National/North American mission requirements, instead of domestic mission capabilities in sufficient quantity and quality as the basis for Canadian overseas contributions;
 - By omission certain aerospace threats, especially the proliferation of long range ballistic missiles, are either not the business of defence, or are the responsibility of Canada's most important ally, the United States;
 - Surveillance satellites are sufficient to deal with existing and emerging outer space defence and security issues which are entirely ignored;
 - Strategic lift remains seriously undervalued even though it is vital for domestic requirements alone, and a significant value-added humanitarian, military and political contribution to international missions;
 - Medium to heavy lift helicopters are of greater significance than the need to re-vitalize and replace the C-130 Hercules theatre lift fleet;
 - The CF-18 fleet is significantly under-utilized when after a \$2.1 billion dollar modernization programme, only six of sixty operational aircraft will be available for overseas missions of six months or less in a close ground support role only, with none available for the Standing Contingency Task Force;
 - The government is unwilling to tackle the pressing need to reduce and re-structure Canada's base infrastructure as a means to free up more money for capabilities;
 - Little attention is being paid to the relationship between investment priorities and larger technological development issues;
- Finally and perhaps above all else,** the present has triumphed over the future not least of all as a function of the ambitious timelines established by senior leadership even though decisions today will create a Canadian Armed Force ten to fifteen years from now.

This report is based upon a workshop held in February 2005 on issues confronting the future of aerospace capabilities in Canada. The views presented are those of the author alone.

Background to the Report

This report is intended to raise issues of concern regarding the proposals found in the Defence Policy Statement (DPS) as they primarily, but not exclusively, concern aerospace considerations and capabilities, and bring these to the attention of the public at-large, as well as the relevant House and Senate Standing Parliamentary Committees. In this regard, the DPS is not perceived as the *final* word on defence and security policy, but rather as a work in progress. Moreover, the government committed itself to public consultation and there is an essential role for Parliament to play in this regard. The 2005 budget also provides two to three years of breathing space before the necessary funds become available to begin implementation of actual re-structuring and transformation as proposed in the DPS.

The DPS like most documents of its kind, contains a significant amount of generality, vagueness and relative ambiguity, especially when it comes to investment priorities and resource allocation decisions. The devil is in the details, and it is important that the government clearly communicate these details at a minimum to ensure that there is no misunderstanding about the direction it has chosen.

If the government is truly committed to public and parliamentary involvement, then the DPS cannot be understood as the final statement on policy and priorities

To this end, this report provides an assessment of these details, including what might be called errors of omission, by inferring from the arguments laid out in the DPS. In so doing, it appears clear that the real government priority is to create a land-centric expeditionary or intervention capability, which can contribute to international missions, UN or otherwise, potentially lead such missions, and possibly act as an independent force. As far as Canadian or domestic and North American defence security, the priority is to re-organize the command structure through the creation of Canada

Command to ensure that CF capabilities as they exist and are acquired for expeditionary purposes can be effectively and efficiently employed at home, while at the same time becoming the force generator for overseas missions.

This interpretation of government direction follows from repeated statements by senior officials prior to and after the release of the DPS. It is also inferred from the way in which capabilities have been prioritized prior to the DPS and in the document itself. Thus for example, as it concerns some aerospace platforms or capabilities, the Canadian Forces (CF) “will... acquire medium-to-heavy lift helicopters...” with their roles detailed (and linked to 2005 budget), whereas the CF will also “acquire unmanned aerial vehicles...” in a generic support role and only “pursue the use of satellites.”¹

Naturally, this analysis is vulnerable to subsequent decisions which fill in the details over time, especially the reports of the Chief of the Defence Staff's Action Teams (CATS). Nonetheless, if this is truly to be an open consultative process, then input from the outside cannot simply await future decisions. Instead, it is hoped that the analysis here can contribute to the work of the CATS in developing the details and ensuring that the government follows through with its commitment.

A Transformed CF and Untransformed Policy

It is clear that the proposed direction of the CF is truly transformative. If carried out, the CF will become a limited role, combat force (niche to use an unpopular term), with its combat core consisting of relatively small elite land forces. The other environments are to be assigned a support function, although they will still possess,

¹ Government of Canada. *A Role of Pride and Influence in the World: Defence*. 2005. p. 14.



CH-149 Cormorant. Photo: DND

or possibly will acquire some sort of strike capability if the funds are available.

However, whether air and naval forces will be structured to operate independently from expeditionary land forces is somewhat doubtful. Yet, there is no reason why the capabilities assigned to an Air Expeditionary Unit could not be made available alone to a coalition effort, such as a future Kosovo type engagement, unless the government and senior leadership has decided to forego such commitments.

This joint force structure is transformative by rejecting the longstanding attempt to maintain balance among the three services or environments in favour of prioritizing land forces for overseas combat missions, and limiting the roles of the other two services in this regard. This proposed force structure is not truly designed for any significant domestic or North American role. Like any and all armed forces, it can undertake domestic missions if necessary (and not committed overseas). But they are designed for international or overseas missions.

The DPS seeks to bring Canadian Force structure into line with the manner in which successive governments have employed the Forces over the past decade and more suggesting a transformation of structure and investment but not policy

In this respect, this emphasis clearly reflects the manner in which governments have employed the CF over the past fifteen years at least; regular employment of an overstretched and strained army in a range of combat environments of which Afghanistan is the most recent and perhaps most influential on current planning. It is consistent with past and present government behaviour and policy regarding the use of armed force, notwithstanding the rhetoric of homeland defence as the priority.

However, this emphasis as reflecting the past is not transformative in a defence policy sense. It is simply a re-packaging or re-branding of policy established decades ago during the Cold War, including all of the shibboleths that have framed thinking about Canada and its role in the world; the very frame that resulted in the dramatic decline of Canadian influence, significance and prestige on the world stage over the last decade.

Throughout the Cold War, Canadian defence was premised primarily on a non-discretionary commitment to forward defence in Europe and arguably, this commitment was of greater priority than homeland and North American defence. Canada has continued its commitment to the overseas environment, even though most if not all of these commitments were discretionary from a narrow Canadian defence and security standpoint, especially with the absence of any direct threat to Canada.

However, a direct threat to Canada appeared on September 11 2001, regardless of whether one views it simply as a product of Canada's proximity to or close relationship with the United States. In so doing, the government through the DPS recognizes the indivisible nature of North American defence and security. Yet, there has been no significant change in thinking about defence at least in terms of capability investment priorities for the National Defence and the CF. Overseas forces remain a priority on the longstanding grounds of forward defence; failed, failing or fragile states are breeding grounds for terrorists, which in turn could strike at Canada and North America.

However, not all failed, failing or fragile states are breeding grounds. In fact, the

overwhelming majority pose no such threat at all. Nor is it the case that land forces are the only valuable and effective Canadian response. Also, not all threats are a product of such states, especially with the proliferation of ballistic missiles and weapons of mass destruction and overall diffusion of advanced militarily significant technologies.

Not all failed or failing states pose a threat to Canada and North America

Certainly, one should not ignore the moral argument for intervention forces. But, limited resources demand hard choices, and regardless of capability the government needs to give priority to failed, failing or fragile states that likely pose direct threats to Canada and North America. Otherwise, Canadian commitments overseas are discretionary.

Policy appears to remain open-ended, suggesting that operational overstretch will continue; no different from past failures to establish and implement a clear set of criteria for the employment of the CF in peace operations. The difference, today however, is that the homeland mission is no longer discretionary, and straining Canadian resources to meet open-ended commitments may well undermine Canadian defence at home.

From Home to Away

The danger of spreading the CF too thin through overseas commitments remains. In addition, non-discretionary domestic/North American defence requirements, as recognized in the DPS cannot be ignored. At the core are two simple realities. First, the defence requirements and investment priorities in the two operating theatres are fundamentally different. Second, it is

doubtful that this or any future government will invest the necessary resources to create and maintain sufficient forces for both; ostensibly two force structures.

Concerning these, the government makes a valiant attempt in suggesting that there is no difference between the theatres, even though the DPS indicates that the national is an aerospace and maritime priority, and the away theatre is a land priority. This, of course is not surprising because this difference reflects defence reality.

There are few, if any direct threats to the continent that necessitate an advanced combat-capable land response. At best the army is a second responder in the case of national disaster and crisis. Joint Task Force 2 (JTF-2) has significance, but the larger highly trained elite forces implied by Special Operations Groups, Standing Contingency Task Forces and Mission-Specific Task Forces are of tertiary value. Similarly in terms of platforms and capabilities, the undefined Joint Support Ship and Direct Fire Support Vehicle, for example, have little role to play domestically.

The apparent government priority to invest in these capabilities stands in stark contrast to the relative vagueness and ambiguity to which national requirements are treated, especially vital territorial surveillance and reconnaissance, and access to the North needs. This is disconcerting not least of all past White Papers, such as 1971 and 1987, are littered by such promises which never materialized into actual capabilities.



CC-130 Hercules. Photo: DND

Of course, this would not be problematic if the government provided adequate resources to meet the requirements of both theatres. But at a time of record surpluses over the past several years, it is disconcerting that so little in fact has been given to defence. Moreover, of the \$12.8 billion promised increase to National Defence, 79% occurs between 2008 and 2010 and only 50% appears to be baseline with the rest as 'one-off' capital investments, which are the most vulnerable to future fiscal environment. Not only is the increase for this and next year insufficient to meet existing shortfalls, but three years is a long time in politics and economics. If the fiscal situation changes dramatically, history indicates that defence again will be the target.

A truly transformative approach to defence is to determine capabilities for overseas missions on the basis of essential capabilities for the domestic/North American mission

Instead of focusing upon unique overseas capabilities and then finding such capabilities a domestic function, consideration should be given more clearly to reversing this predilection. Capabilities essential for the home mission should be acquired to provide surplus for overseas commitments. Capabilities the primary function of which is in overseas missions should be considered for elimination or significant reduction and replacement with National/North American ones. This



CC-130 Hercules. Photo: DND

would be a cost effective approach entailing the more efficient use of limited resources through the exploitation of economies of scale. The government would fully meet its commitment to the nation and the North American theatre, and no longer attempt (and fail) to create and maintain two sets of armed forces.

Critics may suggest that such a transformation would undermine Canada's ability to possess "a role of pride and influence in the world." However, it would not significantly affect Canada's ability to respond to failed, failing or fragile states. It would only alter the types of capabilities Canada contributes. Indeed, some of these aerospace capabilities, such as strategic airlift, which have a significant home role to play, are also in high demand and short supply internationally. Such a capability would be high valued added for international coalitions.

It is also unclear why the government believes that continuing past practices with a more substantive land centric capability and command will translate into greater "pride and influence." Certainly, Canadians may feel better about themselves, but it is questionable that this will translate into influence on the world stage. Indeed, the past fifteen years of overstretched army commitments have witnessed the decline of Canadian influence and status.

Absent Aerospace Threats

The government clearly recognizes that many threats to Canada and North American are aerospace in origin or nature, and require an aerospace capability or response.

Unfortunately, the government simply ignores some of these threats and/or emerging defence and security issues.

In concentrating upon terrorism, possible state-based threats are ignored. These are currently manifested in the existence and the proliferation of long-range ballistic missiles armed with weapons of mass

destruction. Of course, this is a product of the decision not to participate in the US initiated North American missile defence system.

Unfortunately, the government has never fully explained this decision. But in ignoring these threats, one is left with two possible observations. Either the government believes that defence has no role to play or it has by default ceded part of national defence to a foreign country, albeit the closest ally.

For a government committed to national defence, it is puzzling why emerging threats to the nation are not only ignored, but placed into the hands of an ally

The DPS may recognize that NORAD's "mandate is to respond to aerospace threats," but the government has decided that at least one threat is not worth responding to. Trumpeting the assignment of NORAD missile warning capabilities to the operational US missile defence command has a shallow ring when realized that these are derived solely from US only assets.

Alongside this omission, the government has ignored outer space. In fact, outer space does not even warrant attention as a defence and security issue, except for passing reference to possible future satellite surveillance capabilities (even though it is evident in the Department's official policy statement on space).

Today, outer space related threats are limited to the transit of long-range ballistic missiles from launch to possible target points, the possible accidental de-orbiting of satellites or space debris, or meteor strikes. In the future, the proliferation of space-faring nations, technological diffusion and proliferation, and the growing military and economic significance of outer space pose a range of defence and security questions for Canada that cannot or should not be ignored, especially if Canada is going to have any influence in this sphere.

Ceding missile defence to our ally and ignoring outer space implies a decision to

abandon the space side of the aerospace mission in favour of the air side only. In other words, Canada's role in North American defence is actually limited, and if so NORAD's terms of reference will be revised to its original air-only mandate. Again, missile warning does not make NORAD truly an aerospace institution.

Structural Transformation

The DPS is the bridge between the National Security Policy (NSP) and ISP. It also implicitly asserts the primacy of the National/North American mission (NSP) over the ISP. In so doing, it recognizes that "Canada has structured its military primarily for international operations, while the domestic role has been treated as a secondary consideration." Thus, the NSP priority translates into CF command structures, and the creation on Canada Day of Canada Command is its symbol.

But Canada Command is not just a domestic operational command. It is also a force generator for overseas missions and this additional function, notwithstanding issues of effectiveness and efficiency of merging operational and force generation together, suggests that the structure may still prioritize international operations.

Canada Command has significant implications for not only the entire command structure in Canada, but also for the binational defence relationship with the United States

There are extremely significant questions facing the role and function of Canada Command, especially its relationship with US Northern Command, NORAD, and its likely future partner, perhaps International or Expeditionary Forces Command. There are also numerous implications for the role and function of other commands, including Air Force commands. In particular, the future of the environmental command structure and the 1st Canadian Air Division emerges. While it is too premature to judge the implications of re-structuring, pending the release of the detailed CATS studies, close attention needs

to be paid to this issue. Re-structuring is never a 'sexy' issue, and in many circumstances ignored. This may prove ill-advised not least of all because the 'devil is in the details,' and significant re-structuring will carry major short-term costs relative to potential long-term efficiencies and savings.

Also, the brief references to satellites under the discussion of the Air Force (regular and reserve) suggest that responsibility for space will be shifted to the Air Force and away from the joint structure where it currently exists. Such movement would prove useful in that space has languished not just because of significant resource constraints, but also because it has lacked a true home, and thus an advocate.

The CF-18 Fleet

The DPS establishes Canada and North America as the primary mission for the fighter fleet, with only a highly limited role (close ground support) and a limited capability (six fighters for six months) as part of an Air Expeditionary Unit assigned to a Mission Specific Task Force. At present, no CF-18s are assigned to such a unit for the Standing Contingency Task Force. Yet, CF-18 Mission Force requirements should enable this capability to be made available for the Standing Force.

No explanation is provided for the highly limited and constrained role for the CF-18s overseas. Nor is there an explanation for acquiring capabilities for this overseas role when they have little value for the National/North American theatre. Why CF-18 capabilities essential to the domestic theatre are to have no role overseas is also unclear? These issues and questions need to be entertained in light of the recent two billion dollar plus modernization of the CF-18 fleet.

This fleet also offers the best example for using a domestic priority for overseas missions. Even at roughly sixty opera-



CH-146 Griffon. Photo: DND

tional aircraft, there is sufficient surplus capacity with the right investment for meeting domestic and overseas requirements simultaneously. It defends Canadian cities and airspace. It can also provide a significant contribution to international coalitions as seen in Kosovo that can generate significant influence and prestige, limit local casualties through the employment of precision-guided munitions and reduce the threat to Canadian lives, thereby ensuring public support, which may waiver if Canadian forces take significant casualties.

The proposed under-utilized CF-18 Fleet provides an opportunity to leverage vital domestic capabilities for overseas commitments

The CF-18 fleet is also one of the most advanced in the world, as its modernization program has brought it up to date with allies, and ensures interoperability with the most advanced aerospace force in the world, the United States. One cannot help but wonder if the treatment of this multi-role strike capability presages the end of a significant air combat capability for Canada. Having invested to modernize the platform and the capabilities it can bring to bear, the treatment of the CF-18 in the DPS suggests that it is a legacy system to be slowly starved into obsolescence as Canada follows the path of New Zealand.



CF-18 Hornet. Photo: DND

Indeed, the DPS does not even engage the debate of manned versus unmanned aerial combat vehicles, even though it is being closely monitored by the Air Force and others. Instead, unmanned aerial vehicles are strictly limited to surveillance and reconnaissance functions.

The future of Canada's air combat capability is also pressing because of Canada's official investment and industrial involvement in the US Joint Strike Fighter development programme. One would not expect a commitment one way or another in the DPS. But, the treatment of the CF-18 suggests that Canada may be withdrawing from combat air without any analysis and debate of the relative value of such capabilities on the future battlefield and as a contributor to Canada's "role of pride and influence" in the world.

The Never Ending Question of Lift

The DPS, based upon the 2005 budget, suddenly moved tactical airlift to the top of the agenda when until recently it had not even been on the agenda at all. Most, if not all, would agree that medium and heavy lift helicopters would provide a significant contribution to deployed forces, especially in light of Afghanistan. But, then there are no shortage of capabilities that could make a significant contribution, including strike helicopters such as the Apache (here perhaps one might enquire why a direct fire support vehicle is preferred over a rotary platform or other options).

Regardless, tactical lift, as implicitly recognized, is not for the domestic mission. Certainly if available, they could play a role, such as moving personnel and

sand bags during a flood. But, they do not rank high among domestic requirements.

In contrast, strategic and theatre lift should rank high in both the domestic and overseas arenas. Canada is a large country, and a national capability to move large payloads quickly across the country (East-West and North-South) should be a priority. In addition, the Hercules theatre lift fleet (overstretched and overused in part because of its improper employment in a strategic role) is in dire straits. Whereas the Hercules fleet appears to be moving forward relatively quickly, strategic lift remains stalled.

Geography alone dictates that strategic lift should be a priority for defence at home and abroad

Like the CF-18, strategic and theatre lift has priority for both home and away. In particular, strategic lift is in short supply with more and more nations relying upon private contractors. As demand continues to increase, so will cost and availability become a greater problem.

Strategic and theatre lift provide a significant contribution to move forces rapidly (ours or allies) into crisis zones, whether in North America or abroad. Certainly, the Disaster Assistance Response Team (DART) would be much more capable with dedicated strategic lift. If Canada truly wishes

to be able to intervene quickly in a preventive deployment, strategic lift is essential.

In looking at strategic lift, regardless of one's views, two essential points need to be made. First, the idea that strategic lift will spend most of its time sitting idly on the ground is absurd. If anything, husbanding the capability may prove the most difficult. Second, a small, limited purchase of strategic lift (say four to six) is going to be insufficient for meeting domestic and overseas requirements at the same time. In going down this path, Canadians should think in terms of a major commitment to becoming a major actor in the area of strategic lift.

The costs of acquiring strategic lift and replacing the vital Hercules fleet is high, which would require sacrifices to be made elsewhere. One might suggest that the costs are not worth it. But evaluating the costs and benefits of such a choice over others that have been made is vital for making decisions. Otherwise, decisions are to be made by only comparing absolute dollar values relative to existing preferences among decision-makers.

Regardless, strategic/in-theatre lift should be a, if not possibly the priority, because it is a capability that meets both areas of operations (home and abroad) and can generate opportunities for Canadian influence.



Antonov An-124 Ruslan. Photo: Antonov ASTC

Tackling Base Infrastructure

Not surprisingly, the government has again decided to ignore the issue of bases. Perhaps as Canada Command evolves and decisions are made regarding the national command structure, the issue of bases will be finally tackled. As it stands, however, there is no indication that this will be the case. Failure to tackle over-capacity and location will represent another signal that despite the rhetoric, it remains 'business as usual' with defence.

For many years, if not decades, over-capacity has been obvious to all concerned. Moreover, attempts to shrink the base structure have and will always confront significant local and regional political opposition. Nonetheless, it is an issue which cannot be avoided, if the vision outlined in the DPS or any vision for that matter has any hope of success. Existing funds within the budget need to be released and invested in capabilities.

This is particularly true for the Air Force. It possesses too many bases given the size of its various fleets and requirements, even when one takes into account the geographical size of the nation. The Air Force does not need two air bases in Nova Scotia. It does not need two NORAD headquarters (Winnipeg and North Bay). It does not need two dedicated fighter bases (Bagotville and Cold Lake), even though it does need fighters dispersed to defend Canadian cities against a 9.11 type attack, and in the future intercept off-shore cruise missile attacks.

Over-capacity and Cold War legacy bases remain a burden on the CF

Fighter basing raises a second issue – location. Bagotville and Cold Lake, like most Air Force bases are Cold War legacies. The two fighter bases are optimized to intercept Soviet bombers attacking Canada from the North. They are not optimized to confront present threats, and the basic maintenance of forward operating locations (FOLs) in the North can suffice to deal with an uncertain future. Indeed, attention will have to be paid to these locations if the government is finally going to carry through with a real defence

commitment to the North.

Alongside location (which also includes other bases as well), the logic and rationale for dedicated air force bases in contrast to shared military-civilian bases needs to be closely looked at. During the Cold War, dispersing the nation's air fleets to locations far removed from cities made strategic sense. Today, this logic is reversed. In so doing, significant cost saving can be generated through sharing arrangements. Except for the dedicated weapons range in Alberta-Saskatchewan (and even this needs to be examined closely in light of new technologies and allied relations), employing civil-public air fields for the Air Force needs close examination.

Canadians cannot afford to neglect the base question and government leadership is essential. Nor can the military take the burden of making these decisions on its own. Instead, a truly non-partisan, non-political structure needs to be established that will tackle the base question in its entirety with a commitment of the government and armed forces to accept its recommendations. This may be a politically naïve recommendation, but if the government is truly sincere about its commitment to defence, then the issue cannot be avoided.

Technology, Labour and the Future

Decisions today and major budget increases in three to five years will produce capabilities ten years or more into the future. Any evaluation of the DPS in general and its aerospace dimensions in particular must take this into account. This, however, places senior defence officials, civilian and military, in a quandary. Too much attention on today may create a CF 'prepared to fight the last war.'

Too much focus on the future will find no political support, and indeed no government would commit itself to such a White Paper. Governments live in the present.

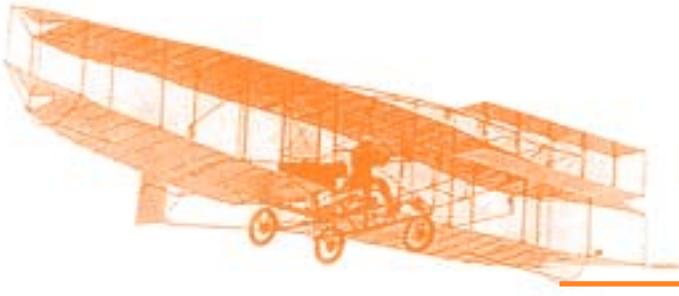
Experts within National Defence, civilian and military, must attempt to strike the right balance between the present and the future as it may be best understood. In this regard, the DPS's overall vision may emphasize too much of the present, and not enough of the future, especially in the aerospace dimension.

In choosing to invest in land-centric expeditionary forces the DPS captures current political preferences and also prepares the CF for the future battlefield. Labour intensive forces for generic peace operations short of major war are not to be neglected, but this is the present. The future is warfighting, especially if recent American campaigns are true harbingers, undertaken by elite special forces (JTF-2) capable of calling down ever more precise strike forces from distances further and further removed from the battlefield.

In pursuing this path or vision of the future, such a capability will ensure that the CF remains inter-operable and a valued contributor to international campaigns. But, this vision places precision strike (aerospace) capabilities in the hands of allies and coalition partners, and it is in this sense that the future is absent in aerospace discussions, notwithstanding references to the acquisition of an air-to-ground weapon's system for the CF-18.



C-17 Globemaster III. Photo: Boeing



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The DPS vision of the future is a land centric force. Perhaps it is the only possible vision because it is a tool or capability that Canadian governments prefer underneath the notion of peacekeeping. It is also more affordable (cheaper) as aerospace capabilities are much more expensive. However, the CF must also closely monitor the future relative to emerging new technologies that promise to revolutionize warfare.

In concentrating too much on the present, the government has put too much weight on labour rather than technology in defence

In this regard, it is difficult to assess the degree to which the vision and transformation takes into account technological considerations. It is silent on the relationship between the future CF and Canada's overall technological capacity and future. But no nation can afford to think about defence in a vacuum and ignore the economic impact of investment.

This is not to advocate defence investments as central to a national economic and technological development strategy. But, defence investment choices relative to understandable pressures to invest in Canada and Canadian firms does demand that defence choices take this into account. In addition, land forces are the least technologically advanced, and increasing the labour force (5,000 regular

and 3,000 reserves) also feeds the most expensive side of the budget (personnel). While concerns about the ability to recruit more individuals in a shrinking labour market are over-stated, planned investments will carry opportunity costs for technological investment.

These are very complicated issues that must be addressed by the actors as the DPS moves forward. There are no easy answers. But it is clear that one of the strengths of Canada's economy is its aerospace sector, and when combined with importance of aerospace capabilities for the defence and security of Canada and North America, future defence investments (not to ignore the problems within procurement process itself) should not ignore much larger technological and economic factors.



Center for Defence and Security Studies
University College
The University of Manitoba
Winnipeg, MB R3T 2M8
cdssum@cc.umanitoba.ca
www.umanitoba.ca/centres/defence

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