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**Transformation of the Canadian Forces:  
Is Aerospace Power Relevant?**

**by/par**

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## ***Abstract***

The Minister of National Defence has recently revitalized the strategic re-orientation initiated by the Canadian Forces four years ago. This re-orientation, labelled transformation, is aimed at adapting the force structure to the new threat exemplified by weapons of mass destruction, failed states, and terrorist networks. It is envisaged that this undertaking will pull the Canadian Forces out of the Industrial Age and propel them into the Knowledge Age, making them both more affordable and more relevant.

Lagging several years behind, Canada is following the example of the US in the transformation of the Western military. Admittedly, the conversion of the Canadian Forces should be substantially less complex than that of a global power like the US, but the resources available to effect this transformation will be proportionally smaller. Fortunately, the Canadians can draw a few illuminating lessons from the US effort, thus far: don't adapt to the future but create it; carry out the process "top-down" with a joint perspective; address the cultural dimension of the challenge up front. From these perspectives, the unified structure of the Canadian military and its organizational agility stemming from its small size should facilitate the process.

This paper examines some of the doctrinal, organizational and technical issues surrounding transformation, and makes specific recommendations on how best address them, including the creation of a Unified Requirements Division accountable to high military authority. Notwithstanding the own merits of the other two environments, this essay discusses why aerospace—because of its flexibility, agility and reach—should be a keystone of the transformed structure of the Canadian Forces in the knowledge age, and how the Air Force, as the custodian of aerospace power, should approach the challenge of transforming itself for the benefits of all Canadians.

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## ***Table of Contents***

Introduction.....	7
Transformation in the Canadian Context.....	9
Military Transformation Strategy .....	12
Transforming Canada’s Air Force .....	21
Vectors .....	27
Conclusions.....	30
References.....	33

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## ***Introduction***

Recently, documents and reports emanating from the Department of National Defence (DND) have made clear that the political and military leadership of the Canadian Forces (CF) is fully engaged in a “strategic re-orientation” of the military establishment of the nation, a process labelled transformation. In 2002, the Chief of the Defence Staff (CDS) articulated the rationale for the transformation as follows: “Clearly, we have reached a critical point in our history, and the time has come to transform the post-Cold War structure of the CF into one that better satisfies the current and future capability requirements.”<sup>1</sup> With a backdrop of uncertainty regarding the long-term sustainability of the CF, the Minister of National Defence (MND) recently reiterated the same conclusion in these words: “... the CF will have to continue making tough choices. [...] The threat has changed. Their environment has changed. **And, if the CF are to remain relevant, they must change.**”<sup>2</sup>

The writing has been on the wall for quite some time. Indeed, it was in June 1999 that the senior military leadership of the CF produced its visionary document entitled *Shaping the Future of Canadian Defence: A Strategy for 2020*. According to VAdm Gary Garnett, its most ardent promoter, the purpose of the document was “to give a sense of the long-term direction in which the Department and the Forces were being taken.”<sup>3</sup> In parallel, the department developed a series of tools and processes (*Force Planning Scenarios*, *Strategic Capability Planning*, yearly *Strategic Overview* and *Military Assessment*, *Canadian Joint Task List*, etc.) to support this strategic change. Subsequently, the three environments articulated their game plans (the Navy’s *Leadmark*,

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<sup>1</sup> Gen R.R. Hénauld, *At a Crossroads—Annual Report of the Chief of Defence Staff 2001-2002* (Ottawa: Department of National Defence, 2002), 13. Catalogue No.: D1-15/2002. Also available from <http://www.cds.forces.gc.ca/pubs>

<sup>2</sup> John McCallum, *2003-2004 Report on Plans and Priorities* (Ottawa: Department of National Defence, 2003), ii. Emphasis added.

<sup>3</sup> Vice-Admiral (ret’d) G.L. Garnett, “The Evolution of the Canadian Approach to Joint and Combined Operations at the Strategic and Operational Level”, *Canadian Military Journal*, Vol. 3, No. 4, 6.



the Army's *Advancing with Purpose* and, the Air Force's *Aerospace Capability Framework*<sup>4</sup>).

What is now different, however, is that the MDN himself appears to be fully engaged in the transformation process and that he is prepared to make the difficult decisions. In the departmental *2003-2004 Report on Plans and Priorities*, the MND stated:

This [the transformation] will require significant new thinking. We will have to make difficult choices. These choices will have to be asymmetric ... That means being guided by new fiscal, technological and strategic realities to make selective, strategic choices on what capabilities we will invest in, what new concepts and capabilities we will pursue or ignore, and what old capabilities we will maintain, reduce or eliminate. We cannot be all things to all people. We must select and invest in those capabilities that reflect Canadian values and interests, and maximize Canada's return on its defence investments.<sup>5</sup>

The minister also conveyed a sense of urgency by concluding: "Transformation requires leadership at all levels and requires a measured, well-thought-out approach, and we must begin the process now."<sup>6</sup>

In principle, transformation should be a collective effort of the defence team; yet, old inter-service rivalries may flare up, especially if commentators start keeping score. Already, the approval of its ISTAR project has been presented as a victory for the army<sup>7</sup>, and the disapproval of the C-17 acquisition as a setback for the Air Force<sup>8</sup>.

The first question coming to mind, possibly the most important, is what transformation means in the Canadian context. A second question is how Canada is going to effect the

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<sup>4</sup> Still in progress, as of 28 May 2003. *Out of the Sun, Aerospace Doctrine for the Canadian Forces* (B-GA-400-000/AF-000), published in the mid 1990s, is the most recent aerospace strategic paper publicly available at [http://www.cds.forces.gc.ca/pubs/strategic\\_e.asp](http://www.cds.forces.gc.ca/pubs/strategic_e.asp). Accessed 28 May 2003.

<sup>5</sup> John McCallum, *2003-2004 Report on Plans and Priorities*, iii.

<sup>6</sup> *Ibid.*, iii.

<sup>7</sup> Daniel Leblanc, "Ground troops McCallum's priority", *The Globe and Mail*, 28 February 2003, p. A4

<sup>8</sup> Daniel Leblanc, "Defence chief vetoes buying transport planes—McCallum rejects air force no. 1 project", *The Globe and Mail*, 21 February 2003 [on-line edition].

transformation of its armed forces. Another one is how the various services can best present an honest and credible case for their particular environment, while avoiding perceived or actual “military parochialism... the most serious obstacle preventing meaningful reform [of the services].”<sup>9</sup>

By providing answers to the above question, this paper argues that the Canadian Forces are strategically, organizationally, doctrinally well positioned to carry out their transformation. While all three services have a distinct role in the process, the Air Force, as the custodian of the Canadian aerospace power, is particularly well endowed to play a leadership role in the transformation of the Canadian Forces, in the whole. Canadians deserve no less.

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<sup>9</sup> Admiral Bill Owens, *Lifting the Fog of War* (New-York: Farrar Strauss Giroux, 2000), 151.

## ***Transformation in the Canadian Context***

To help define transformation in the Canadian context, we will first examine the definition of those who have invented the concept, the US Department of Defense. The US DOD defines transformation as follows:

Transformation is a process that shapes the changing nature of military competition and cooperation through new combinations of concepts, capabilities, people and organizations that exploit our nation's advantages and protect against our asymmetric vulnerabilities to sustain our strategic position, which helps underpin peace and stability in the world.<sup>10</sup>

So, the US transformation is explicitly linked to the US defence strategy articulated in the *2001 Quadrennial Defence Review*.<sup>11</sup> It is also clearly aimed at providing the military capabilities to implement the *2002 National Security Strategy*.<sup>12</sup>

The Canadian Department of National Defence defines transformation as follows:

In the military context, transformation is a process of strategic re-orientation in response to changed circumstances, designed to make substantial changes in the nation's armed forces to ensure their continued effectiveness and relevance.<sup>13</sup>

The Canadian definition begs the question: relevance for what? One can safely presume that the grand parameters of the *1994 White Paper* still apply: sovereignty of Canada, defence of the continent in collaboration with the US, and collective defence abroad. However, the government now appears to put an increased emphasis on homeland defence: "Today, the most serious threat to our security is the proliferation of weapons of mass destruction to rogue regimes, failed states, and terrorist networks that have global reach."<sup>14</sup> Practically speaking, until the Government of Canada has completed a review

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<sup>10</sup> Office of Force Transformation, *Transformation Planning Guidance* (Washington, DC: US Department of Defence, April 2003); available from <http://www.oft.osd.mil>; Internet; accessed 28 May 2003.

<sup>11</sup> Ronald Rumsfeld, *Quadrennial Defence Review* (Washington, DC: Department of Defense, 2001).

<sup>12</sup> George W. Bush, *The National Security Strategy of the United States of America* (Washington, DC: The White House, September 2002); available from <http://www.whitehouse.gov/nsc/nss.html>; Internet; accessed 28 May 2003.

<sup>13</sup> John McCallum, *2003-2004 Report on Plan and Priorities*, 15.

<sup>14</sup> *Ibid.*, i.

of its defence and foreign policies, the foundation of the transformation agenda will be uncertain.

Transformation of the military, in the US and Canada, is also required on the basis that the current force structure cannot be sustained in the long run. In the US, despite an annual budget exceeding US\$400B, commentators are talking about an imminent “train wreck”. In Canada, many have argued that the defence budget must be increased by at least \$1B, just to maintain the current structure. The 2003-2004 budget saw the infusion of an additional \$800M which was quickly applied to the most pressing, short-term needs. Yet, it is unlikely that new money will be budgeted to effect this transformation and the level of defence spending will likely continue to determine defence policy, as it is the tradition in Canada since 1947.<sup>15</sup> In effect, it can be safely predicted that transformation of the CF will have to be implemented more or less within the existing allocations.

How is transformation different from modernization? Andrew Krepinevich, one of the key architects of the transformation of the US Armed Forces, has defined transformation “as innovation on a scale sufficient to effect a military revolution [which] produces a discontinuous leap in military effectiveness, typically of an order of magnitude or greater.”<sup>16</sup> In its recent transformation roadmap, the US Air Force makes the point “not to group all modernization under transformation. Modernization involves modest, incremental upgrades or improvements to current systems and capabilities or ways to conduct war.”<sup>17</sup> Although it is not clear if the leadership of the Canadian military anticipates an order-of-magnitude increase in military effectiveness out of its

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<sup>15</sup> Doug Bland, “Funding Canada’s Defence Policy”, Council for Canadian Security in the 21<sup>st</sup> Century, Electronic Research Paper available from [http://www.ccs21.org/ccspapers/papers/bland-funding\\_defence.htm](http://www.ccs21.org/ccspapers/papers/bland-funding_defence.htm); Internet; accessed 29 May 2003.

<sup>16</sup> Andrew Krepinevich, “Why No Transformation?”, *The National Interest*, 04 February 1999.

<sup>17</sup> Secretary of the Air Force, *The USAF Transformation Flight Plan 2003-07* (Washington, DC: Department of the Air Force, 2002), 4; available from [http://www.oft.osd.mil/library/library\\_files/document\\_200\\_usaf\\_transformation\\_Pub\\_Release.pdf](http://www.oft.osd.mil/library/library_files/document_200_usaf_transformation_Pub_Release.pdf); Internet; accessed on 11 June 2003.

transformation initiative, it has clearly associated the needed transformation with a Revolution in Military Affairs (RMA).<sup>18</sup>

This RMA affecting the world defence establishment is based on the wonders of modern information and communications technology.<sup>19</sup> Most proponents, like US Navy Admiral Owens, argue that the impact of the RMA will be increasingly felt in three capability areas: Battlespace Awareness, C4I, and Precision Force.<sup>20</sup> Later, we will explore some of the implications of this information-based RMA on the future roles on the Canadian Forces.

Of course transformation, like all change initiatives, receives its share of derision and criticism. One Canadian commentator has derided transformation as “the latest excuse for accomplishing nothing”.<sup>21</sup> In the US, one analyst has argued that DOD transformation may be given lower priority to next-generation programs, with only US\$23 billions being earmarked for transformation in the FY2004 budget of US\$399.1 billions.<sup>22</sup> Even within the military establishment, the RMA is resisted, if not opposed, on the basis of the success of the 1991 Gulf War<sup>23</sup>, the resistance validating the adage that the military always prepare to fight the last war. Indeed, this attitude could prove disastrous in the future.

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<sup>18</sup> John McCallum, *2003-2004 Report on Plan and Priorities*, iii.

<sup>19</sup> Sloan, Elinor C., *The Revolution In Military Affairs: Implications For Canada And NATO* (Montreal and Kingston: McGill-Queen's University Press, 2002), 25-28.

<sup>20</sup> Admiral Bill Owens, *Lifting the Fog of War*, 15-18.

<sup>21</sup> Nic Boisvert, “Transformation—What’s the Point?”, Council for Canadian Security in the 21st Century, Article available from [http://www.ccs21.org/articles/may03/boivert\\_transformation\\_may03.htm](http://www.ccs21.org/articles/may03/boivert_transformation_may03.htm) ; Internet; accessed 29 May 2003

<sup>22</sup> Steven Kosiak, *FY 2004 defence R&D request raises questions about administration’s approach to transformation* (Washington, DC: Center for Strategic and Budgetary Assessment, 2003), 1.

<sup>23</sup> Admiral Bill Owens, *Lifting the Fog of War*, 19.

## ***Military Transformation Strategy***

*“The talk you hear about adapting to change is not only stupid, it’s dangerous. The only way you can manage change is to create it.”—Peter Druker<sup>24</sup>*

So the tough question is how best to achieve the required transformation of the Canadian Forces. Let’s review first the transformation strategy adopted by the US DOD and compare it to the outline of a transformation strategy emerging from the DND.

### **US DOD Transformation Strategy**

As Owens recounts in *Lifting the Fog of War*, the decision to transform the US Armed Forces was taken in 1992, in the aftermath of the 1991 Gulf War. The Chairman of the Joint Chiefs of Staff published *Joint Vision 2010* in 1995, and various inter-service coordination groups were created, etc. But, in Owens’ view, progress has been impeded by many factors, including the lack of political will, the particular structure of the US military services and, “... military parochialism... the most serious obstacle preventing meaningful reform of the ... services so that [they] can adapt to the new world around us.”<sup>25</sup> The election of George W. Bush in 2000 and the appointment of Ronald Rumsfeld as Secretary of Defense reenergized the transformation effort by adopting a more vigorous top-down approach.

In the *2001 Quadrennial Defence Review*, the Secretary of Defense has articulated the requirement for transformation and specified the following 6 outcomes of the transformation:

- ◁ Protect the homeland and forces overseas,
- ◁ Project and sustain power in distant theatres,
- ◁ Deny the enemies sanctuary,
- ◁ Protect own information networks from attack,
- ◁ Use information technology to link up forces so they can fight jointly, and

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<sup>24</sup> Quoted on the US Air War College website, <http://www.au.af.mil/au/awc/awcgate/awc-chng.html> accessed 13 April 2003

<sup>25</sup> Admiral Bill Owens, *Lifting the Fog of War*, 151.

◁ Maintain unhindered access to space.<sup>26</sup>

In his document *Joint Vision 2020*, the CJCS has identified the following strategic concepts in order to achieve his vision of “full spectrum dominance”: Dominant Manoeuvre; Precision Engagement; Focused Logistics; Full Dimensional Protection; Information Operations; and Joint Command & Control.<sup>27</sup>

However, Krepinevich in a 2002 testimony before Congress expressed serious reservation about this approach; in his views, the strategic concepts are too generic and do not provide specific guidance on “how to” carry out the Armed Forces will actually carry out their mission in 2020: “Stripped of their adjectives, the characteristics of effective “maneuver”, “engagement”, “logistics” and “protection” would be those desired by *any* military organization, in *any* era”.<sup>28</sup> Krepinevich argued that the next requirement for accelerated transformation was the development of “... point-of-departure concepts of operations that [would] set forth, in significant detail, how the Services see themselves achieving critical operational goals”<sup>29</sup>, in 2020.

It would appear that Krepinevich has been heard. Indeed, in the 2003 *US DOD Transformation Planning Guidance*, the Secretary of Defense identified the development of joint operating concepts as one of the three fundamental elements to the new transformation strategy.<sup>30</sup> It will be the responsibility of the Chairman of the Joint Chiefs of Staff to oversee the production of these concepts of operations, which will be developed, experimented and validated against the following set of nine criteria:

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<sup>26</sup> Donald H. Rumsfeld, *Quadrennial Defense Review* (Washington, DC: US Department of Defense, 2001)

<sup>27</sup> Chairman of the Joint Chief of Staff, *Joint Vision 2020* (Washington DC: US Government Printing Office, June 2000), 20-33.

<sup>28</sup> Andrew Krepinevich, *Defense Transformation*, Testimony before the Senate Armed Services Committee on 09 April 2002; available from [http://www.csbaonline.org/4Publications/Archive/T.20020409.Defense\\_Transforma/T.20020409.Defense.htm](http://www.csbaonline.org/4Publications/Archive/T.20020409.Defense_Transforma/T.20020409.Defense.htm); Internet; accessed 28 January 2003

<sup>29</sup> Andrew Krepinevich, *Defence Transformation*, 5.

<sup>30</sup> US DOD, *Transformation Planning Guidance*, 8. The Secretary has identified culture change as the first element of the US Transformation Strategy. He has also created the position of Director, Office of Forces Transformation, reporting directly to him and responsible to coordinate the transformation process.

- ◁ Superior information position,
- ◁ High-quality shared awareness,
- ◁ Dynamic self-coordination,
- ◁ Dispersed forces,
- ◁ De-massed forces,
- ◁ Deep sensor reach,
- ◁ Compressed operations and levels of war,
- ◁ Rapid speed of command, and
- ◁ Alter initial conditions at increased rates of change.<sup>31</sup>

As mandated by Congress, all three US services have proposed their own transformation roadmaps: the Navy’s *Power and Access... From the Sea*, the Army’s *Transformation Campaign Plan* and, the Air Force’s *Transformation Flight Plan*.<sup>32</sup> The documents present the various operational concepts that the Services are proposing in order to meet the outcomes of transformation articulated in the *2001 QDR*. (Table 1)

<i>US Navy</i>	<i>US Army</i> <sup>33</sup>	<i>US Air Force</i>
◁ Sea Strike	◁ Joint C4ISR	◁ Air/Space Expeditionary Forces
◁ Sea Shield	◁ Joint Common Relevant Operating Picture	◁ Space & C4ISR Task Force
◁ Sea Basing	◁ JTF C2	◁ Global Strike TF
◁ FORCEnet	◁ Rapid Decisive Operations	◁ Global Response TF
	◁ Joint Operational Warfighting	◁ Homeland Security TF
		◁ Global Mobility TF
		◁ Nuclear Response TF

The overall impression that emerges from the above description of the US transformation effort is that it is very much work-in-progress. As Lieutenant-General Edwin P. Smith, US Army, has said, the US services “tend to continue parallel, competitive and even

<sup>31</sup> *US DOD Transformation Planning Guidance*, 31-32

<sup>32</sup> All three services roadmaps are available from <http://www.oft.osd.mil>; Internet; accessed 28 May 2003.

<sup>33</sup> The US Army transformation roadmap does not present a succinct list of future operational concepts. Instead, it explicitly states that it will work with the Joint Staff and gives notional examples of concepts they are considering.



overlapping efforts, which only partially achieve intended outcomes and revalidate the fact that service stove-piping is wasteful.” He argues that what is needed is a Joint Transformational Framework to help “align and integrate the separate service transformation efforts.”<sup>34</sup>

The development, validation and experimentation of the joint concepts—such the Rapid Decisive Operations concept<sup>35</sup>—are mainly the responsibility of the Joint Forces Command. Krepinevich emphasizes the utmost importance that the experimentation be conducted through field exercises aimed at the operational level of warfare, with the Combatant Commanders as the primary customers.<sup>36</sup>

### **DND Emerging Transformation Strategy**

DND essentially followed the approach adopted by the US DOD. Like the US *Joint Vision 2010*, the Canadian *Strategy 2020* was to provide a vision for the desired future.<sup>37</sup> More specifically, *Strategy 2020* was “to position the force structure of the CF to provide Canada with modern, task-tailored, and globally deployable combat-capable forces that can respond quickly to crises at home and abroad, in joint or combined operations.”<sup>38</sup> The subsequent publication of *Strategic Capability Planning for the Canadian Forces* promulgated a series of eleven *Force Planning Scenarios* and articulated the fundamental precept that “CF will normally participate in international operations as a contributing

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<sup>34</sup> Lt. Gen. Edwin P. Smith, US Army, “Integrated Warfighting: Toward a Joint Transformational Framework”, *Armed Forces Journal International*, September 2002: 70-74.

<sup>35</sup> Other concepts have been proposed by various organizations and think tanks. See for example, Hans Binnendijk and Richard L. Kugler, *Adapting Forces To A New Era : Ten Transforming Concepts*, Defense Horizons No. 5, Center for Technology and National Security Policy, National Defense University (Washington, DC : NDU Press, Novembre 2001).

<sup>36</sup> Andrew F. Krepinevich, *Lighting the Path Ahead: Field Exercises and Transformation* (Washington DC: Center fo

part of a coalition. ... Therefore, the fundamental asset that the CF requires for international operations (also a key contributor to domestic responsibilities) is what may be termed a tactically self-sufficient unit (TSSU).”<sup>39</sup> Subsequently, each Environment set out to articulate its own strategy in response to the departmental *Strategy 2020*.

The Navy was the first out of the blocks, when it published *Leadmark: The Navy’s Strategy for 2020* in June 2001. The 237-page *Leadmark* document, also a primer on naval power theory, argues that Canada needs a “Rank-3 Medium Global Force Projection Navy”. Such a navy would allow Canada to meet the “fundamental national requirement to ensure sovereignty over Canada’s oceanic estate” and to continue its “participation in coalition naval operations [...] in the best interest of Canada and the place that [Canada] has [consistently] identified for itself in the world.” To meet those so-called “obligations”, the document identifies the competencies that such a navy should possess: C4ISR, Self-Defence, Organic Air, Force Air Defence, Under Water Warfare (UWW), Sealift, Naval Fire Support, etc. It is noteworthy that *Leadmark* consistently avoids linking naval competencies with specific systems or existing fleets.<sup>40</sup>

Also in response to *Strategy 2020*, the Army published *Advancing with Purpose—The Army Strategy*, in May 2002. Very succinctly, the main objectives of the Army over the next 10 years are: to transform into a medium-weight, information-age army and to achieve seamless interoperability at brigade level with the forces of the US, other ABCA countries and selected NATO allies.<sup>41</sup> In a companion document, Colonel Howie Marsh makes the fundamental point that: “The broad thrust in the Army of Tomorrow is to develop a force that can respond very quickly.” He subsequently concluded: “We believe that the answer is likely to be found by shortening communications links and

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<sup>39</sup> *Strategic Capability Planning for the Canadian Forces* (Ottawa: Department of National Defence, 2000), 18; available from [http://www.vcds.forces.gc.ca/dgsp/dda/strat/intro\\_e.asp](http://www.vcds.forces.gc.ca/dgsp/dda/strat/intro_e.asp); Internet; accessed 16 April 2003.

<sup>40</sup> *Leadmark: The Navy’s Strategy for 2020* (Ottawa: Department of National Defence, June 2001), 125-126.

<sup>41</sup> *Advancing with Purpose: The Army Strategy* (Ottawa: Department of National Defence, May 2002), 20.

integrating capabilities. Imagine an infantry-like section that has its own artillery, armour, signals, and combat intelligence.”<sup>42</sup> Like the Navy, the Army has refrained from linking its existing equipment (*Leopard* tanks, *M-109* artillery, *ADATS* short-range air defence, etc.) to any of the anticipated future capabilities.<sup>43</sup>

If the Air Force had yet to publish its formal response to *Strategy 2020*, the Chief of the Air Staff recently gave a public indication of the content of Air Force’s *Aerospace Capability Framework*. Four capability areas have been identified: control of the air, precision engagement, information exploitation, and rapid force mobility. Under Project Transform, the air staff has reportedly stood up a team to review the air force capabilities and to propose “transition plans” for each warfare areas.<sup>44</sup>

It should be underlined that the DCDS Group is also playing a role in the transformation. Under the Director-General Joint Force Development, a Directorate Joint Forces Concept and a new Canadian Forces Experimentation Centre (CFEC) have stood up, presumably to “align, synchronize and calibrate the transformation”.<sup>45</sup> In practice, the DCDS has two competing roles as force employer (j1212 332459P7ataint59PmaUndeC) and force Generator e.o  
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consensus in Canada that this loose coordination may not be entirely satisfactory. The June 2000 *Strategic Capability Planning for the Canadian Forces* zeroed in on the core issue:

However, force generation - the many activities involved in developing and preparing military forces for operational employment - is still almost exclusively undertaken by the three Services, with minimal guidance from the commander that employs them on actual operations, the DCDS. Arguably, this situation places undue emphasis on maintenance of the status quo, and does not foster a more unified approach amongst the services. In particular, programs that would benefit the CF as a whole but which are of only marginal utility to single services often find it difficult to gain support. A joint force generation team within DCDS may be one approach to overcoming this current shortcoming.<sup>46</sup>

In order to address the same issue, the Office Secretary of Defense (OSD) appears to be engaged in a colossal battle with the various services to centralize requirements definition.<sup>47</sup> Owens made exactly the same recommendation in his *Lifting the Fog of War* bestseller.<sup>48</sup> Since Owens appears to have a lot of influence in the OSD, let's examine some of his other recommendations and their implications for Canada.

Following Drucker's admonition that the best way to manage the future is to create it, Owens posed the question: "What if the US could create a state-of-the-art military force from scratch?" Owens argues that an RMA-born force would be characterized by:

- < Unified command structure.
- < Unitary military war-fighting organizations.
- < Embedded information warfare capabilities.
- < From the command chain to the command network:
  - o Lean and mean combat units;
  - o C4ISR capabilities;
  - o Consolidated global mobility;
  - o Consolidated advanced logistics;

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<sup>46</sup> *Strategic Capability Planning for the Canadian Forces*, 11. Vice-Admiral Garnett, *The Evolution of the Canadian Approach...*, 8, has recently reiterated the suggestion that "all service requirements [be] centralized in a single joint requirement staff."

<sup>47</sup> Anne Marie Squeo, *Rumsfeld Moves To Strip Services Of Power To Set Equipment Needs*, Wall Street Journal, May 19, 2003. According to the article, Mr. Rumsfeld is seeking to "establish joint needs for the Defense Department in the beginning so military departments become the providers of those capabilities".

<sup>48</sup> Admiral Bill Owens, *Lifting the Fog of War*, 203.

- Consolidated medical service;
- Homeland support; and,
- ◁ Cultural harmony.<sup>49</sup>

If one accept Owens' prescription, it would thus appear that the Canadian military is fairly well postured to proceed with its transformation. The Canadian Forces already have already a unified command structure and rivalry between the various services is arguably less acute in Canada than in the US. "Certainly, the evolution of the DCDS as the only 'force employer' is well underway."<sup>50</sup> Possibly the most important factor that militates in favour of the successful transformation of the CF is that our forces are small, hence theoretically more amenable to fundamental change. However, capability requirement definition is still the responsibility of the Environmental Chiefs of Staff (for maritime, land and air requirements) and, of the DCDS (for space, Joint C2, etc.). "Arguably, this situation places undue emphasis on maintenance of the status quo..."<sup>51</sup>

Once it is realized that status quo and transformation are fundamentally incompatible, the challenge is to engineer the desired futures while taking optimum advantages of the core competencies of all the four environments (land, sea, air, and joint). As we have seen previously, the Army and the Navy appears to have been able to make a politically better case for their service than the Air Force has. Not taking away any of the relative merits of the Army and the Navy, the next section will present the case that the characteristics of airpower, properly understood, should make it a key player of the transformation of the Canadian Forces.

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<sup>49</sup> Ibid., 202-206.

<sup>50</sup> Vice-Admiral Garnett, *The Evolution of the Canadian Approach...*, 7.

<sup>51</sup> *Strategic Capability Planning...*, 11.

## **Transforming Canada's Air Force**

*“Strategic leadership includes not only operating successfully today but also guiding deep and abiding changes—transformation—into the essence of the organization.”* —LGen (ret'd) Gordon Sullivan, USA<sup>52</sup>

Unlike the other services, the Canadian Air Force has yet to publish its strategy for 2020. This author hence feels free to explore some of the transformation challenges facing the Air Force, to examine some of the alternative futures available to the senior leadership and to propose a set of “vectors” or recommendations for a future that will best serve the Canadians.

There are perhaps three principal challenges to the transformation of the Canadian Air Force: doctrinal, strategic-organizational and fiscal. Let's examine them in turn.

### **Doctrinal challenge**

The doctrinal challenge relates to the definition of airpower and its relevance to a medium-size nation like Canada. At the risk of triggering a doctrinal debate, Builder and others have made the case that the classical theories of airpower as developed by Douhet, Trenchard, Mitchell et al. no longer explain the observations made in the laboratory of the 20<sup>th</sup> century history. According to Builder, three principal observations would militate for a new theory. First, the atmosphere and the space above it are truly a continuum and that limiting the “third-dimension” to the air environment is increasingly artificial. Is the Space Shuttle a spacecraft or an aircraft? The development of trans-atmospheric vehicles, capable of travelling half way around the globe in two hours, will eventually settle the question.

Second, if warfare is a lot more than combat, airpower is a lot more than air superiority and strike, as LGen Campbell has so eloquently argued recently<sup>53</sup>. It also includes its

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<sup>52</sup> Gordon R. Sullivan and Michael V. Harper, *Hope Is Not A Method: What Business Leaders Can Learn From America's Army* (New York: Times Business, Random House, 1996), 44.

exploitation for, *inter alia*, Communications, Intelligence, Surveillance Reconnaissance, Logistics, all capabilities that the development of aerospace technologies has revolutionized. Today, the boundaries between the air warfare areas are increasingly blurred. Rapid strategic airlift, capable of transporting an army battle group half way around the globe in 48 hours, is an effective military exploitation of the air medium. Airborne Warning and Control Systems (AWACS) or Joint Surveillance and Target Acquisition Systems (JSTAR) are capabilities for both combat and surveillance. And the Global Positioning System (GPS) providing navigational aids to a fighter aircraft and target coordinates to its precision-guided bombs has practically replaced the fighter pilot. Thus, an airpower theory centred on air superiority and strike capabilities<sup>54</sup> is definitely incomplete, increasingly irrelevant and possibly damaging to the very future of the institution promoting it. Conversely, a more encompassing definition is arguably more compatible to several possible futures. One such definition has recently been provided by LCol Wheeler et al: “the projection of force, utilizing the full range of aerospace capabilities, both military and civilian, to achieve political and military objectives during wartime as well as in periods of tension, crisis, or in peacetime.”<sup>55</sup>

Finally, cyberspace is the new medium where battles are increasingly fought, and which increasingly provides ‘lift, buoyancy or traction’ to all military capabilities. For example, a precision-guided bomb virtually flies to the target through the infosphere constituted of 0s and 1s. As Col R. Szafranski, USAF, and Dr M. Libicki, US Air University, have argued, a rationale exists “for the Air Force to drop its atmospheric orientation in favour of an infospheric one”.<sup>56</sup>

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<sup>53</sup> LGen L.C. Campbell, *Address to the 66th Annual General Meeting*, CDA.

<sup>54</sup> LCol S. Lepage & al., “Air Power Theory”, in *Air Power at the Turn of the Millennium*, ed. David Rudd, Jim Hanson and André Beaugard (Toronto: Canadian Institute of Strategic Studies, 1999), 117-140.

<sup>55</sup> LCol B.D. Wheeler & al, “Aerospace Doctrine”, in *Air Power at the Turn of the Millennium*, 143.

<sup>56</sup> Col Richard Szafranski and Martin Libicki, “... Or Go Down In Flame? An Airpower Manifesto for the 21<sup>st</sup> Century”, Research Paper presented to Air Force 2025, August 1996; available from <http://www.au.af.mil/au/2025/volume4/chap02/v4c2.htm>; Internet; accessed 14 April 2003.

In summary, when one compares the above attributes of a modern aerospace power theory (centred on information and the aerospace continuum) against the characteristics of the on-going RMA (based on Battlespace Awareness, C4I and Precision Weapons, as we have seen previously), one cannot but avoid the obvious: aerospace power may actually be the fundamental enabler of the transformation of the Canadian Forces. Carl Builder made this very argument when he wrote:

In the emerging, less controllable world of global commerce and borderless nations, the military medium of dominance and, hence, of choice to power elites will be the aerospace continuum because of its universal, rapid access and unique vantage point. Hence, the **control and exploitation of that medium**, more than any other, will offer the widest range of military options and the highest degree of military power.<sup>57</sup>

It is important to underscore that aerospace power, the theory and doctrinal concept, must not be confused with the Air Force, the institution. This fundamental observation leads to the second challenge of strategic organizational nature.

### **Strategic organizational challenge**

The second challenge relates to the apportionment of the military aerospace realm between the institutions classically known as the Army, the Navy and the Air Force, and the new player, the Joint Staff. Historically, this varies from country to country. In the US, military aerospace power is delivered by the Navy, the Marine Corps, the Army, the Coast Guard, the Air Force, and a score of defence agencies (National Surveillance Agency, etc.). In Canada, the space portion is generated and maintained by the DCDS in partnership with the Canadian Space Agency and other allied organizations, while it is the mission of the Air Force “to generate and maintain combat capable, multi-purpose air capabilities to meet Canada’s defence objectives”<sup>58</sup>. In addition to its ambiguous grammatical construct, the statement is somewhat limiting, as reflected by the words *combat* and *air*, especially when contrasted against the preceding theory of aerospace power.

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<sup>57</sup> Carl H. Builder, *The Icarus Syndrome: The Role of Air Power Theory in the Evolution and Fate of the US Air Force* (New Brunswick, N.J.: Transaction Publishers, 1994), 290.



In *The Icarus Syndrome*, Builder proposed the following mission statement for the USAF: “The mission of the Air Force is the military control and exploitation of the aerospace continuum in support of national interest.”<sup>59</sup>

Between the arguably restrictive wording of the mission statement of Canada’s Air Force and the open-ended nature of Builder’s enunciation, certainly more relevant to a “full-spectrum” air force like the USAF, there is room for a strategic review of the Canada’s Air Force mission. To be more explicit, this author has the audacity to propose that the Chief of the Air Staff and the CDS renegotiate the mandate of the Air Force to read: The mission of Canada’s Air Force is to generate and maintain multi-purpose capabilities for the *military* control and exploitation of the *aerospace* continuum to meet Canada’s defence objectives. The revision of the Air Force mission could potentially bring several benefits.

First, for North American Air Defence, the Air Force already generates, sustains and employs a robust C3ISR capability, fed from national (ground, civilian and military), US (mainly space) and allied (AWACS when operating in Canada) assets; it also provides and operates ISR platforms, mainly the CP-140 Long Range Patrol Aircraft. Putting the generation and maintenance of all Canadian aerospace ISR under the executive responsibility of the Chief of the Air Force should create opportunities for new transformational synergies.<sup>60</sup> Second, the transfer of responsibility would relieve the DCDS some of his force generation functions, allowing him to focus on his unique responsibility, the conduct of operations. Finally, more a result of the process and an objective intent, the debate surrounding a new repartition of the mission areas between the four environments would likely create additional opportunities for other organizational transformations.<sup>61</sup>

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<sup>58</sup> Chief of the Air Staff, *Planning Guidance 2003* (Ottawa: Department of National Defence, 2003), 1-1.

<sup>59</sup> Carl H. Builder, *The Icarus Syndrome...*, 284.

<sup>60</sup> This would give a new ring to the motto of the Air Force: “*Sic Itur Ad Astra*”.

<sup>61</sup> It is often argued that the CF do not really need to develop joint capabilities, as they rarely operate jointly. Ironically, if the CF needs one joint capability, it is the capability to transform themselves in

## **Military-technical challenges**

The third challenge facing the senior DND leadership is, of course, the articulation of a force structure that is militarily effective, administratively efficient and politically acceptable. The MND summarized the challenge very well when he wrote:

In this context, the Defence transformation agenda will not seek to re-structure or reequip the CF completely, but will instead blend existing and emerging systems and structures to create greatly enhanced capabilities relevant to future missions, roles and tasks. It will require difficult choices, however: which concepts and capabilities should we invest in, and which concepts and capabilities should we reduce, reject, discard or eliminate.<sup>62</sup>

Here we enter the realm of the defence program management with all the military and technical challenges regarding roles, missions and tasks, the development of new concepts of operations as “point of departure” for the transformation, ‘system-of-systems’ engineering, capability definition, R&D, experimentation, acquisition, etc. In operational research terms, this is the problem of optimizing a meta-system.

According to experts, force development is most effectively addressed on a capability or mission area basis, not on the basis of platforms.<sup>63</sup> A platform focus may be efficient to manage maintenance engineering, but it breeds status-quo or incremental modernization if applied to force development. Force development staff must feel free to ask penetrating questions, such as: What is most cost-effective for the defence of Canada, a wing of Joint Strike Fighters or an army Stryker brigade? What is the best way to provide ground fire support, long-range artillery or laser-guide bombs? What is the best way to conduct urban warfare, infantry or tanks? What is the optimum mix of legacy, modernized and super high-technology capabilities? What is the optimum mix of manned and unmanned platforms? Full libraries have been written on these subjects over

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response to the new security imperatives, possibly, through the standing-up of a Joint Requirements Branch in the DCDS Group.

<sup>62</sup> 2003-2004 Report on Plans and Priorities, 15.

<sup>63</sup> Adm Bill Owens, *Lifting the Fog of War*, 167-168.

the last five to ten years, tomes are being added every week.<sup>64</sup> Suffice to say that, with respect to transformational capabilities, the inherent aerospace attributes of “reach and power”, if considered objectively, can look after themselves and provide the CF an “asymmetric advantage”. The following two examples cited by Owens illustrate the point.

The first one involves urban warfare where aerospace power could “provide ... forces commander essential information about the three-dimensional battlespace and identify key nodes that support the adversary and then attack them using precision weapons, nonlethal systems, and information warfare.”<sup>65</sup> The second example concerns strategic airlift. War gaming exercises conducted by the US Army have repeatedly shown that “strategic speed” is the main determinant in successful military operations, abroad. “In other words, the early bird wins the war.”<sup>66</sup> Arguably, it may also be a strategic determinant in applying soft power in complex operations, where time is often of the essence. One will note that both examples called for the core competencies of aerospace power, broadly defined, and that both situations implied a joint “system-of-systems” approach to operations.

There is certainly a widely held perception that airpower can play a key role in the new security environment. Builder powerfully made the case as follows:

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<sup>64</sup> The classics on transformation include: Andrew F. Krepinevich, *The Military-Technical Revolution: A Preliminary Assessment* (Washington, DC: Center for Strategic and Budgetary Assessment, July 1992); Colonel John A. Warden III, “The Enemy as a System”, *Airpower Journal*, Spring 1995; William A. Owens, “The Emerging System of Systems”, *Military Review* 75, Issue 3, May/June 1995; Admiral Bill Owens, *Lifting the Fog of War* (New-York: Farrar Strauss Giroux, 2000); Elinor C. Sloan, *The Revolution in Military Affairs: Implications for Canada and NATO* (Montreal and Kingston: McGill-Queen’s University Press, 2002); RMA Operational Working Group, *Canadian Defence Beyond 2010, The Way Ahead—An RMA Concept Paper* (Ottawa: Department of National Defence, May 1999), available from [http://www.vcds.forces.gc.ca/dgsp/dda/rma/wayahead/rma2010\\_e.doc](http://www.vcds.forces.gc.ca/dgsp/dda/rma/wayahead/rma2010_e.doc). See also the Air War College Gateway to Transformation of War & US Military available at <http://www.au.af.mil/au/awc/awcgateway/awc-chng.htm>; the US DOD Office of Force Transformation website available at <http://www.ofc.osd.mil/library/library.cfm>; and the US Joint Forces Command website at <http://www.jfcom.mil/about/transform.html>.

<sup>65</sup> Admiral Bill Owens, *Lifting the Fog of War*, 210-211.

<sup>66</sup> *Ibid.*, 216.

In a world where access to other points on the surface may be increasingly jeopardized by intervening regions of disorder or hostility, the third dimension may be the most confident, secure, and rapid means for access. In a world of widespread political disorder and conflict, the third dimension may also be the most confident and secure vantage point for observing and then discriminatingly applying military power. Thus, even as the relative powers of the nation-states decline, there is more rather than less to suggest that air power has become the military instrument of choice for coping with the new disorder of a world undergoing revolutionary change.<sup>67</sup>

In the US, not without some controversy, the Air Force is certainly zealously advocating and aggressively promoting this idea that airpower will be key to the transformation of the military, a claim that appears to be supported by the Bush Administration.<sup>68</sup>

In Canada, the “Army transformation is a key CF priority”<sup>69</sup> and the minister has publicly praised the Chief of the Land Staff for his technology-driven transformation plan.<sup>70</sup> The Air Force has been unsuccessful in getting approval of its strategic airlift project, mainly because it was unaffordable, but also because it was not perceived to be truly transformational. “Transformation means making choices, not falling back to the **traditional** and obvious.”<sup>71</sup> To say the least, the “traditional” Air Force appears to have some difficulty in selling the airpower flexibility, mobility, rapidity and lethality as the transformational factors in the future of the Canadian Forces.

What should the Air Force—the institution—do to best present an honest and credible case for aerospace power so that the transformation of the Canadian military can best meet the present and future needs of Canadians? Let’s explore some possible “vectors”.

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<sup>67</sup> Carl H. Builder, *The Icarus Syndrome*, 290.

<sup>68</sup> Secretary of the Air Force, *Air Posture Statement 2002* (Washington, DC: Department of the Air Force, 2002).

<sup>69</sup> Gen R.R. Hénault, *At a Crossroads*, 28.

<sup>70</sup> John McCallum, *Speaking Notes*, Annual General Meeting of the Conference of Defence Associations, 27 February 2003; available from [http://www.forces.gc.ca/site/newsroom/view\\_news\\_e.asp?id=1014](http://www.forces.gc.ca/site/newsroom/view_news_e.asp?id=1014); Internet; accessed 11 June 2003.

<sup>71</sup> Daniel Leblanc, “Defence chief vetoes buying transport planes—McCallum rejects air force no. 1 project”, *The Globe and Mail*, 21 February 2003 [on-line edition]. Emphasis added.

## **Vectors**

As Owens pointed out, transformation demands first and foremost a joint approach. The Air Force should take advantage of its long established ability to cooperate with the Army and the Navy to influence “deep and abiding changes into the essence of the organization”<sup>72</sup> of the CF, in a top-down fashion. Playing a strategic leadership role, the Air Force should advocate for, and join in, the creation of a unified force development and transformation office. The Air Force, as an institution, has little to lose and much to gain from such a proactive approach. As Builder demonstrated, the attributes of aerospace power make it more rather than less relevant to the future security environment.

Second, the Air Force as an institution should define, articulate and sell its competencies on the basis of a generalized theory of aerospace power, such as the one proposed by Wheeler & al: “the projection of force, utilizing the full range of aerospace capabilities, both military and civilian, to achieve political and military objectives during wartime as well as in periods of tension, crisis, or in peacetime.”<sup>73</sup> This paradigm would open up both outer- and cyber-spaces as the domains of the Air Force.

Third, the Air Force should develop, articulate, promote and manage its unique competencies more in terms of capabilities than in terms of platforms. A platform-centric approach smacks of tradition, status-quo, and incremental modernization, often antagonizes stakeholders, and is less conducive to a transformational mindset.

Fourth, the Air Force should focus more on its ability to operate in the infosphere rather than the atmosphere. True enough, the ability to observe and reconnoitre from a high vantage point is an historic and original competency of aerospace power. But a more transformational competency is the ability to exploit this ISR information in an integrated fashion, and transform it into knowledge for the benefit of the Commander of the

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<sup>72</sup> Gordon R. Sullivan, *Hope Is Not A Method...*, 44.

<sup>73</sup> LCol B.D. Wheeler & al, “Aerospace Doctrine”, in *Air Power at the Turn of the Millennium*, 143.

Combined Joint Task Force, as the case may be. To do this in an efficient and effective way will require integrating space-based systems, manned or unmanned aircraft, and the related information networks, in a “system of systems” approach. With proper technology, and the addition of space assets, all these capabilities could be networked to present a common operating picture, which is truly transformational capability in and of itself. In the future, the strategic air weapon system may very well be the Combined Air Operations Centre (CAOC) providing a real-time Common Air Operating Picture. Information and knowledge are likely to be more relevant than fire and steel against rogue states and terrorist networks.

Finally, the Canadian Air Force, which envisions “to become the best small air force in the world”<sup>74</sup> should take advantage of its lean command structure and its distinct agility<sup>75</sup>, to accelerate its transformation. Canada and the Canadian Forces deserve the best capabilities aerospace power can provide.

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<sup>74</sup> LGen Campbell, *Speaking Notes to the 66<sup>th</sup> Annual General Assembly*, Conference of Defence Associations.

<sup>75</sup> David Hall, *The Revolution in Military Affairs and Air Command*, Conference of Defence Associations Institute, Proceedings of the First Graduate Student Symposium (Ottawa: CDAI, 1999). Available from <http://www.cda-cdai.ca/english-frame.htm>; Internet; accessed 29 May 2003.

## Conclusions

*“If the leadership is perceived to represent special interests within the institution, then those interests, even more than the institution’s mission or vision statements, will be seen by many as shaping the future.”—Carl H. Builder<sup>76</sup>*

Like US Department of Defense, but lagging by almost a decade, the DND and the CF have embarked on another segment of their long-term transformation journey destined to stay ahead of the threat to international peace and security. As is usually the case at such a juncture, the military will be faced with tough decisions. The Canadian situation is arguably two orders of magnitude less complex than that of the US. Yet, Canadians can draw several lessons from the US, who has preceded them on this road.

Possibly the most illuminating lesson emanating from the US effort is not to adapt to the future but to create it. The second lesson is to carry the process “top-down” with a joint perspective. A third message is to address the cultural dimension of transformation upfront. The transformation of the Canadian military should be facilitated mainly by its unified structure which, compared to the US, is relatively free from inter-service rivalry, and by its organizational agility stemming from its small size.

If the Canadian Forces are legally one service, the Environmental Chiefs are still responsible to generate and sustain the forces. At times, commentators and members of Parliament pit the Environments against each other. For obvious reasons, this situation is not conducive to an orderly re-orientation. As previously suggested in *Strategy 2020* and as currently envisaged by the US Department of Defense, the CF’s first step to success should be to stand up a Unified Force Development and Transformation division accountable to the highest authority.

Within or outside a Unified Development and Transformation Division, the Environmental Force Development Directorates would have a vital role to play in the transformation process. Drawing from their experience and expertise, environmental

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<sup>76</sup> Carl H. Builder, *The Icarus Syndrome...*, 226.

staff officers would have to articulate an honest and credible case for the military advantages and attributes of their particular Environments. In the long-term interest of the CF and their capabilities to meet the current and future needs of the nation, all three Environments have unique competencies to offer.

In Canada, aerospace power, or the ability to control and exploit the aerospace continuum for national defence purpose, has allegedly taken a lesser priority than the land and naval forces, possibly favoured more by good timing rather than by the logic of the argument, which has yet to be formally articulated. In the US, a convincing case has been made that aerospace power is increasingly relevant to the security needs of the 21<sup>st</sup> century.

Admittedly, Canada does not require the “global reach and global power” of the US. Yet, the demand to defend our part of the vast, largely uninhabited North American continent is absolute. And our desired ability to rapidly deploy military forces around the globe to deal with unpredictable crises should not be overlooked. Arguably, the capacity to control and exploit the aerospace domain is the most effective and efficient means to meet such current and future requirements.

The Air Force is the institution charged with the custodial responsibility of generating and sustaining military aerospace capabilities in Canada. From this perspective, the Air Staff has much to contribute to the success of the strategic re-orientation of the Canadian military establishment.

First, the Air Force can take the initiative by articulating, proposing and participating in the creation of the Unified Force Development and Transformation Division, as previously mentioned. Second, the Air Staff must approach transformation from the broadest perspective, focusing on all aerospace roles, missions and tasks that are relevant to Canadians. The battlespace has now four dimensions and it is increasingly in cyberspace that battles are won. In the future, collecting and exploiting aerospace information, rather than applying fire and steel, may be the most important capability for projecting power.



As long as Canadian airmen remain true to their motto (“*Sic Itur Ad Astra*”), avoid confusing their institution and its mission, and exercise strategic leadership, the future of aerospace within the Canadian Armed Forces will be a bright one, indeed.

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