CANADIAN GLOBAL AFFAIRS INSTITUTE
INSTITUT CANADIEN DES AFFAIRES MONDIALES

Toward Agile Procurement for National Defence: Matching the Pace of Technological Change

by William Richardson, Kalen Bennett, Douglas Dempster, Philippe Dumas, Caroline Leprince, Kim Richard Nossal, David Perry, Elinor Sloan and J. Craig Stone

June 2020

POLICY PAPER

TOWARD AGILE PROCUREMENT FOR NATIONAL DEFENCE: MATCHING THE PACE OF TECHNOLOGICAL CHANGE

by William Richardson, Kalen Bennett, Douglas Dempster, Philippe Dumas, Caroline Leprince, Kim Richard Nossal, David Perry, Elinor Sloan and J. Craig Stone

June 2020

CANADIAN GLOBAL AFFAIRS INSTITUTE
INSTITUT CANADIEN DES AFFAIRES MONDIALES

Prepared for the Canadian Global Affairs Institute
1800, 421 – 7th Avenue S.W., Calgary, AB T2P 4K9
www.cgai.ca

ISBN: 978-1-77397-133-9

Forward

In the fall of 2019, the procurement theme of the Canadian Defence and Security Network (CDSN) convened a workshop on the challenges facing high technology defence acquisitions. The workshop brought together practitioners from the Department of National Defence and Canadian Armed Forces and researchers from universities and think tanks, including graduate students. The aim of this workshop was to give these researchers a chance to understand how those working in defence procurement are tackling the problem of acquiring high technological capabilities that are not obsolete before they are even delivered. The researchers, in turn, have prepared this report, in collaboration with the Canadian Global Affairs Institute (CGAI), on bringing greater agility to defence procurement in Canada. As the authors note, this should be a key part of the defence procurement debate in Canada once Canada and the world emerge from COVID-19 emergency.

Philippe Lagassé, Co-Director (Procurement Theme), Canadian Defence and Security Network

Canada's fight against COVID-19 has eclipsed nearly all other policy concerns, and rightly so. Nonetheless, the normal business of the state keeps running in the background, albeit with many dedicated politicians, exempt staff, civil servants, and military officers working from home or taking extraordinary measures to limit the transmission of the virus in offices. This applies to defence procurement as much as any part of government; the business of equipping the Canadian Armed Forces (CAF) must go on in the face of the current crisis to ensure that the military remains prepared for future operations.

Prior to the COVID crisis, it appeared the defence procurement debates of the 43rd Parliament were going to focus on the Liberals' pledge to establish a single government organization responsible for military acquisitions. Minister of National Defence Harjit Sajjan had confirmed that efforts to study this agency are underway, but he warned that "more work" is needed before any timelines could be set.[1] For now, the creation of Defence Procurement Canada remains hypothetical. Perhaps this is for the best. The focus on Defence Procurement Canada risks diverting much needed attention away from a more pressing issue: the federal government's ability to keep up with the pace of technological change in the defence sector.

The challenges associated with rapid technological change, which affects everything from communications to computer networks to cyber security, have amplified calls for greater agility in defence procurement. Unless the defence procurement system finds ways to become nimbler when acquiring capabilities that are dependent on fast moving technological developments, Canada risks falling behind its allies and adversaries. If this occurs, the Canadian government will face higher risks and have fewer options when deploying the military.

In light of this possibility, this joint Canadian Defence and Security Network (CDSN) / Canadian Global Affairs Institute (CGAI) report aims to refocus the defence procurement debate on the challenge of keeping up with technological change, and on embracing a more agile approach to acquisitions. To do so, the report begins with a discussion of the challenges of working with external partners who are increasingly setting the pace of change, notably the United States and industry. Next the report discusses how existing procurement processes complicate efforts to keep up with technological change, and how an agile approach could help address this challenge. Finally, the report argues that no matter what procedural fixes or innovative approaches are introduced, agility will only bear fruit if it is accompanied by a careful balance of greater trust and accountability.

[1] Charlie Pinkerton, "No timeline set for development of promised defence procurement agency," *iPolitics* (January 2020), https://ipolitics.ca/2020/01/02/no-timeline-set-for-development-of-promised-defence-procurement-agency/.

Follow the Leaders

Canada's most important military ally is unquestionably the United States. One cannot examine Canadian defence procurement outside the context of the Canadian defence partnership with its southern neighbour. Whether as part of the defence of North America or expeditionary operations, the CAF must be able to maintain interoperability and network connectivity with the United States military, which influences the capability requirements that drive Canadian military acquisitions. When the United States modernizes its communications equipment, datalinks, or cryptographic standards, the CAF must follow suit to maintain interoperability with the American military. While it may be tempting to downplay the importance of keeping up with the United States, the execution of the missions the government has assigned to the CAF are intimately tied to the ability to interoperate with them.

One example of these interoperability demands are the latest developments in battlefield communications technologies being implemented in the United States. The multi-domain battlespace is an innovative concept that will see allied forces sharing valuable tactical information and rapidly distributing and reassigning command and control and warfighting tasks between elements. As its name suggests, the multi-domain battlespace involves the linkage of military platforms across operational domains, allowing them to function as nodes in a more integrated, resilient and flexible joint force. Under the concept, the main priority is the establishment of network connectivity and a common operating picture.[2] To take part and fully contribute to this endeavor, the CAF must be capable of total integration into these dynamic electronic networks that will govern the modern battlespace. Currently, for instance, a series of Canadian Army projects under the umbrella of the Land Command Support System Modernization (LCSS) initiative are seeking to provide the CAF with the capabilities that will be required to interoperate with allies in this multi-domain battlespace. As these projects move their way through the procurement process, they will both highlight the opportunities and advantages of high-end interoperability and the challenges associated with delivering these capabilities to the CAF in an effective and coherent manner. If the CAF lags behind, it may be less able to operate with its allies, face increase mission risks, or limit the deployment options available to government.

The United States is not the only actor Canada must work to match in terms of technological developments. The pace set by the high technology sector is equally important. The past two decades have also seen a proliferation of advanced commercial technologies with military applications – so called "dual-use" technologies. In its most recent National Defense Strategy, the United States argues that it is emerging from a period of strategic atrophy, aware that its competitive military advantage has been eroding.[3] Challengers include Russia and China, countries with a huge appetite for emerging technologies, along with those like Iran which is

---

2 Sydney Freedberg, "A Computer that Happens to Fly: USAF, RAF Chiefs on Multi-Domain Future," *Breaking Defense* (April 2018), https://breakingdefense.com/2018/04/a-computer-that-happens-to-fly-usaf-raf-chiefs-on-multi-domain-future/; For a classification of levels of information exchange under the LISI interoperability model, see *Levels of Information System Interoperability (LISI)*, C4ISR Architectures Working Group (March 1998), http://web.cse.msstate.edu/~hamilton/C4ISR/LISI.pdf: ES-4.

3 Summary of the National Defence Strategy of the United States of America, "Sharpening the American Military's Competitive Edge", 1.

aggressively pursuing cyber capabilities. The demand on both sides is for technological advantages in cyber/digital weapons, robotics, artificial intelligence, autonomous systems, and three-dimensional printing, among other things.[4] Increasingly, cutting edge advancements in defence-relevant capabilities are found not in traditional defence firms, and certainly not government laboratories, but within the high technology sector.[5] While industry has always been driven by research and development, this sector is moving at a speed that is incredibly difficult for governments and militaries to match.

Indeed, the idea of a 'defence industrial base' as we have traditionally known it has utterly changed in the digital age. The term refers to the industrial assets of a country that support the production of equipment for its armed forces. Well-known defence firms such as Lockheed Martin, Boeing, General Dynamics, Babcock and BAE systems are just a few of them. But today we must also include the multitude of innovative commercial companies in Canada, the United States and elsewhere in the list of those to which Western militaries must turn to maintain an advanced, high-tech military. Only a few technological capabilities remain relevant only to militaries (e.g. stealth and precision force), with the result that defence is becoming a follower rather than a leader in many, if not most, areas of technology. While defence once exported military capabilities to the civilian world, the tables are being turned with defence becoming a net importer of technological advances from non-defence firms.[6] Today the Pentagon is seeking to aggressively tap the expertise of companies well outside the traditional defence industrial base, and even beyond Silicon Valley to other technology centers, in order to maintain its competitive edge against contemporary threats.[7]

If the first challenge for Canada is to keep up with allied developments, the second is to establish new partnerships with firms that permit government to access (and regain a measure of influence over) advanced technologies while fostering domestic innovation. Equally, if not more challenging, Canada must be able to acquire capabilities at a speed that allows the CAF to not fall too far behind what is being developed and sold on the open market. This is not an insignificant challenge. For partnerships with domestic industries to thrive, there must be a steady stream of work from the CAF, not large orders every decade or so. Equally important, domestic firms must know if they can truly be competitive in a world where allies such as Canada are struggling to adapt their procurement systems to the speed of today's technological innovation. One example of how this can happen is the relationship that has been built between General Dynamics and the Canadian and British governments. This firm's work on mission systems integration on Canadian aircraft and an open architecture for the tactical communications and information systems of the British Army offer benchmarks for other initiatives to follow.

---

[4] Daniel E. Schoeni, "Three Competing Options for Acquiring Innovation," *Air & Space Power Journal* (Winter 2018): 85.

[5] *Avoiding Surprise in an Era of Global Technology Advances,* National Research Council, (Washington, DC: National Academies Press, 2007): 13, as paraphrased in Ben FitzGerald and Kelley Sayler, *Creative Disruption: Technology, Strategy and the Future of the Global Defense Industry* (Washington, DC: Center for a New American Security, June 2014): 9.

[6] FitzGerald and Sayler, *Creative Disruption*: 6.

[7] Tim Greeff, "A Sea Change is Underway in U.S. Military Procurement," *Investor's Business Daily* (June 2018), https://www.investors.com/politics/commentary/defense-department-contracts-technology-high-tech-firms-procurement/.

The Challenge of Keeping Up

Canada must keep pace with fast-evolving regulatory environments and technological standards if the CAF is to remain a reliable partner and relevant warfighter. The military equipment Canada operates must adhere to international standards if Canada wants to send its equipment to places where those regulations are enforced. When those regulations change, Canada must update its equipment to ensure continued compliance.

A telling example here are regulations related to air traffic. When international standards for navigation or aircraft identification changes, and Canada wants to fly its military equipment abroad, it needs to update its equipment to comply with the new regulations. Updating CAF to meet these new standards has been a complex endeavour under standard procurement procedures. Although it is expected that a number of aircraft fleets will be updated on time or shortly after the anticipated deadline, others will require waivers to fly outside of Canada. The fact that something as basic but critical as meeting air traffic regulations is tied up in cumbersome procedures speaks to the lack of flexibility of the current procurement system.

While waivers and exception can be sought for regulatory standards, interoperability and cyber requirements are less forgiving. As military equipment across all domains and services becomes increasingly reliant on software, the rate of technological change in military equipment corresponds to the pace of software development. This introduces three problems. First, it is difficult to complete projects before the software that enables equipment has been revised enough times to make the delivered product obsolete. Frequently, DND/CAF faces a situation where an update to acquired equipment is required the day it is delivered, given the extent of technological change.

The second problem can play out across different acquisitions for pieces of equipment that need to integrate seamlessly with each other, as their ability to do so is often linked to their supporting software. When the acquisitions of different pieces of equipment are divided across different projects, which inevitably proceed on different schedules, the problem of technological currency in the acquisition phase is amplified. Variable delivery schedules produce equipment with different levels of technological sophistication and compatibility. Managing systems integration is quite challenging and is made more so by procurement processes that lack the ability to adapt requirements as projects progress through various stages and gates. A similar problem occurs during the in-service support phase of a piece of equipment's lifecycle. Given ongoing technology changes, the software required to make it work continues to evolve over time and after purchase. To continue to keep the equipment performing as intended, the software packages may need frequent updating to keep pace. While some updates may be relatively simple to achieve, others morph into larger-scale projects that are subject to the cumbersome realities of the traditional procurement process.

Still another challenge is that requirements may not be known when a technologically-driven project makes its way through the procurement process. In such cases, there is a need to set a baseline requirement for a 'minimum viable product' that can be quickly developed, tested in the

field, then adjusted and retested as technology advances. Unfortunately, the existing procurement process does not allow for this iterative approach.

What does all this mean, practically speaking? To put the problem in simpler, relatable terms, given the pace of defence procurement, imagine if the Canadian military had had to buy a smartphone in 2007 under procedures and timelines that surround capital projects. DND/CAF would have set the requirements based on a Blackberry or the iPhone 1, perhaps have gotten the iPhone 2 or 3 when the first batch was delivered ten years later, when the iPhone X and Samsung Galaxies were the latest models available to the public. While it may be 'good enough' to work with an iPhone 2/3 running on outdated software that it can handle, this older model will have trouble fully interoperating with allies who are sporting a smartphone that can run the latest operating system and newest applications, and it will be at a distinct disadvantage against the adversary who is using the latest Huawei 5G enabled smartphone with the most up to date operating system and applications. Ideally, in this scenario, the project would have been able to update its requirements throughout the acquisition, ensuring that it, too, could benefit from the latest technology, rather than the last generations'. So, the question is this: what needs to be done to ensure that the CAF fields the latest generation of technology, rather than older, less functional kit?

Mechanical Processes in a Digital Age

In many ways, the Canadian defence procurement process is akin to a legacy weapons system. It can get the job done when it needs to, but it is ill-suited to the contemporary security and technological environment. Four aspects of Canada's procurement process prevent cutting edge acquisitions from being set up for success. The first, and arguably most fundamental, is the length of time required to complete procurement projects. Accounts vary but the common understanding is that major DND/CAF projects take an average of 10-15 years to complete. With that long period of time between the start and end of projects, it is increasingly difficult to buy equipment that relies on evolving technologies to remain relevant and interoperable.

Canada's approach to capability development and project management exacerbates this difficulty. The setting of capability requirements demands a good deal of time and efforts at the front end of the procurement process, after a project has been identified and enters options analysis. The time lag between when these requirements are firmed up and industry is asked to bid on a project can be considerable. As a project enters definition and later implementation, DND, PSPC and ISED must settle on a bid evaluation criterion before a major capital project can be brought before the Treasury Board Secretariat to receive expenditure authority. Negotiations over requirements and the weighting of bid evaluation criteria can be protracted, as can the process to secure expenditure authority from the Treasury Board. Once a contract is ready to be signed, moreover, it can take many months, if not longer, to secure the Treasury Board's final approval –even if the contract has been carefully negotiated, subject to significant oversight, and ensured value for money. While it is of course necessary to ensure that due diligence has been performed, the successive Treasury

Board gates that must be passed before a capability can be delivered is yet another example of the disconnect between the procurement process and the pace of change the CAF is facing.

A related obstacle is the relative rigidity of requirements after options analysis has been completed. Once requirements have been set and options analysis concludes, there is little subsequent interaction with industry.[8] Once a project enters the implementation phase, there is little capacity within the established process to identify new cross linkages with related acquisitions and make changes that may affect its budget, requirements or priority. Firming up so many key parameters early, when set against the length of time it takes to complete a project, increases the likelihood of serious technological lag by the time the equipment is delivered.

A similar set of difficulties surround the setting of budgets and schedules in the early phases of an acquisition. The budget for a project will typically be firmed up in options analysis, though it may occasionally be adjusted as it enters definition. Once the budget has been set, however, there is an expectation that it will be respected. Although this makes a good deal of sense to ensure coherence across the defence department's investment plan, budgets may not reflect the actual costs projects face if technological standards have changed. Likewise, the schedules that are proposed in the early stages of a project are often too rigid or place unrealistic expectations on acquisitions that aim to keep pace with newer technologies.

Canada's approach to capability development and project management also deters innovative commercial firms, such as smaller companies in the high technology sector, from participating in defence procurements. Industry concerns about the ownership of Intellectual Property and the public relations impact of providing a capability that will be used militarily may simply be part and parcel of supplying to defence.[9] However, firms are also discouraged by the extensive bureaucratic paperwork and declining margins for profit associated with supplying to government. As an example, the letters of interest for two ongoing DND/CAF cyber projects are comprised of nearly 100 pages of documentation, making participation in the projects exceedingly complex for small businesses with little experience in defence.[10] Larger corporations with experience supplying goods and services to the DND/CAF are often the only private sector firms with the resources and the risk tolerance to qualify for and bid on government contracts.[11]

Compounding these problems still further is the manner in which the government categorizes money. Specifically, the Government of Canada uses different pools of money and approaches for buying new equipment (so-called Vote 5) than it does for repairing or maintaining the equipment

---

8 *From Bullets to Bytes: Industry's Role in Preparing Canada for the Future of Cyber Defence*, Canadian Association of Defence and Security Industries (Ottawa: 2019), https://www.defenceandsecurity.ca/UserFiles/Uploads/publications/reports/files/document-24.pdf: 16-17.

9 FitzGerald and Sayler, 15-16, 23; Ralph D. Thiele, "Chasing the Centre of Gravity in the Age of Accelerations," *Institute for Strategic Political, Security and Economic Consultancy*, Strategy Series Issue 550 (May 2018): 3.

10 The two cyber projects are the Decision Support Project, which is designed to provide response capability against advanced threats and enhance decision making, and the Cyber Security Awareness Project, which intends to manage the confidentiality, integrity and availability of DND/CAF cyberspace.

11 Classification systems required to register a cyber defence company to do business with the Government of Canada include the Standard Industrial Classification (SIC) System, the North American Industry Classification System (NAIC); and the Goods and Services Identification Numbers (GSIN).

once purchased (so-called Vote 1). Vote 5 is meant for the acquisition of new capabilities, with improved performance, while Vote 1 is meant to keep existing capabilities going. This can lead to suboptimal outcomes when Canada is dealing with interoperability, regulatory and technological upgrades and modernizations. Regulatory upgrades that ensure the CAF's aircraft can still fly internationally, for example, fall under Vote 5, since they involve an 'improvement' of the aircraft's capabilities. While this is true in one sense (the upgrades allow for better tracking, communications, and safety overall), it does not involve a significant improvement of the asset's core capabilities and functions. Nevertheless, the rules around the 'colour of money' demand that regulatory upgrades follow the cumbersome procurement processes associated with Vote 5. Since any technological or regulatory upgrade arguably 'improves' the capabilities of an asset, even the most basic efforts to keep equipment up to date and interoperable risks being brought under the cumbersome process of a Vote 5 capital acquisition.

That being said, the solution to this issue is not to transfer more projects to the Vote 1 budget. Vote 1 funds are already stretched and DND is already doing a significant amount of upgrade work in some areas using Vote 1 money. There is also a strong case to be made that major information technology (IT) projects, including those tied to interoperability and regulatory improvements, require careful monitoring and oversight. Canada's experience with the Phoenix pay system rightly encourages officials and ministers to err on the side of caution when it comes to IT. Similarly, it may be too simplistic to say that data should be treated like fuel today, a resource that is so fundamental that it must be bought quickly and easily to ensure the CAF can operate. Nonetheless, this raises the obvious question of whether another 'colour of money' is needed to address time sensitive capabilities that required the funding levels and improvements associated with Vote 5, but the flexibility and faster implementation of Vote 1 spending.

Indeed, the 'colour of money' problem stresses an underlying point: rather than attempting to fit rapidly changing technology into existing constructs, it is necessary to look beyond how things are usually done to arrive at a nimbler approach to defence acquisition overall.

Toward Agile Procurement

Agility is currently a fashionable term in Canadian government procurement but, as with many trends, it means different things to different people. In a defence context, agility encompasses simply doing better, procurement reform, procuring faster, adopting particular approaches to project management as well as addressing specific issues particularly important to DND/CAF. While all these things are important, it may not be useful to label all of them 'agile'. In our view, the search for agility in defence procurement should first focus on an immediate, achievable objective: ensuring that high-technology capabilities and enablers can be rapidly updated and modernized to ensure that the CAF is able to fulfill the missions assigned to them by the government. Agility here means enabling the CAF to keep up with the pace of change set by its allies and industry.

As noted, agile procurement is not new to the Government of Canada. PSPC defines agile procurement as "a new collaborative approach that focuses on outcomes. It brings together government and industry to design procurements in an iterative manner to achieve results."[12] For a government IT project to be considered agile, the following four factors must be present:

- First, there must be an iterative approach to deliverables, with mechanisms to terminate or modify the project as it progresses between small, time-defined work packages. This approach safeguards value for money and permits contracts to be awarded in a more timely and efficient manner.

- Second, the procurement must be focused on outcomes. High-level evaluation criteria permit a range of solutions to be proposed and evaluated. The capability solution is not pre-determined and requirements are not over specified. Suppliers are encouraged to propose their best solutions to government.

- Third, cross-functional teams comprised of procurement, management and technical experts run the procurement.

- Fourth, a collaborative approach with suppliers is taken, facilitating the sustainment of a dialogue on needs and outcomes throughout the procurement process.[13] Agile here is an evolutionary concept that builds on established practices and cultures. It does not mean "doing the same, more quickly."[14]

These ongoing PSPC initiatives suggest that new contracting vehicles are required to give DND/CAF access to the latest technologies. Rather than soliciting contract proposals that respond to a predefined solution, government should facilitate the submission of multi-phase bids. The defence team can then award a series of short-term contracts containing go/no-go decision points based on performance indicators to arrive at the most effective capability solution in a timely manner.[15] This iterative strategy affords government regular opportunities to communicate needs and feedback to suppliers. The approach is conducive to the development of innovative products that are both tailor-made to current needs and adaptable to future requirements. The introduction of short-term contracts can also help to lower the risk to industry and by extension the barrier to entry for participating in Canadian defence procurement competitions – firms would no longer be required to generate complete capability solutions while facing the possibility of receiving no remuneration. This method, when taken in concert with the measures outlined above, can foster renewed industrial collaboration that enables the DND/CAF to work with external partners fruitfully and keep pace with the rate of change.

---

12 "Challenge-based and agile procurement," Public Services and Procurement Canada (January 2020), https://www.tpsgc-pwgsc.gc.ca/app-acq/ma-bb/appagile-proagile-eng.html.

13 "Adopting an Agile Approach to Federal Procurement," Public Services and Procurement Canada presentation to Agile Procurement Workshop (Ottawa: September 2019): slide 3.

14 Jerome Rein and Matt Hasik, "The Ten Rules for Agile in Aerospace and Defence," Boston Consulting Group, https://www.bcg.com/industries/engineered-products-infrastructure/Ten-Rules-Agile-Aerospace-Defense.aspx

15 "Adopting an Agile Approach to Federal Procurement"

Projects also need to be able to accommodate evolving technical standards and emerging capability solutions. These include the following approaches:

- When higher end technologies are involved, key parameters established early in project's life may need to be revisited and reassessed to keep pace with recent developments and innovations. Project requirements need to reflect capability targets that have the potential to change.

- High level requirements set during options analysis may need to be re-validated regularly to ensure that the CAF maintains an operational advantage in a dynamic threat environment. As acquisitions progress, spending intentions should be reviewed frequently to ensure that the latest technologies and capability solutions can be considered.

- Capability priorities also need to be reviewed at regular intervals. Such changes to established practices can help to ensure that Canada does not fall into situations where it purchases yesterday's equipment, tomorrow.

Agility must apply to budgets and schedules as well. While budgets and schedules cannot be open-ended, an agile approach demands that they be treated as probabilistic when set in the early phases of a procurement. Senior leaders must accept that budgets and schedules will need to evolve as agile projects move forward. Agility will demand that projects not be labelled as problematic if budgetary projections change or schedules adapt over time. Indeed, agile procurement will require that budgets and schedules themselves be flexible and adaptable. This does not mean that there will be no boundaries or that projects should be allowed to run wild, but it does imply that the traditional means of tracking project successes will need to be rethought.

Making projects adaptable and agile in this way may involve delegating significant decisions down from governing boards to project teams. Indeed, agility may require that governing boards focus more on ensuring that project teams are properly coordinating with one another, rather than validating requirements that will likely evolve as projects make their way through the system. Provided that teams are able to stay within their budgets and that they are mindful of their project dependencies and expected outcomes, they should be given as much responsibility and control as possible when managing requirements that will necessarily evolve given the pace of technological change.

Above all, agility demands a cultural shift. Indeed, when the Boston Consulting Group put out a top ten list of what is required for agility in aerospace and defence, a striking number of these are less about tools as they are about mindsets, including emphasis on principles over process, picking the right leaders and teams and allowing them to stay in place for the duration of a project, and

most importantly, "fail fast, and learn continuously."[16] Indeed, to achieve this cultural shift, failure must be accepted as one of the steps that leads to success in an iterative process.

Many of these points resonate in Canadian defence. Above all:

- A commitment to agility must come from the upper echelons of government, notably the Treasury Board and the offices of ministers involved in defence procurement.
- This messaging should be clear and goal oriented. To the extent possible, the authority to pursue agile initiative needs to be delegated to allow acquisitions to progress more efficiently.
- Senior public servants should challenge and empower their teams to pursue innovative solutions. Procurement teams should be cross-functional, with members assigned to projects for their entire duration.
- More than anything else, officials should be oriented towards results rather than process, and they must allow teams to fail and recover quickly without derailing efforts to achieve agility.

Conclusion: Trust and Accountability

No matter what agile initiatives are put in place, they will only succeed if a still larger change in culture is embraced, one that rethinks trust and accountability in defence procurement. The current procurement system, with its many checks, gates, and procedures, is the result of controls and oversight mechanisms being introduced to address distrust between ministers, central agencies, and departments involved in major procurements. This distrust is understandable. There have been significant errors in the past and no government wants to face the media and opposition criticism when projects involving millions or billions of dollars go bad. Whenever there has been a failure or mishap, it has been attractive to add additional layers of oversight and procedure, including deputy-level committees, independent reviews, and external audits. And while these measures have arguably reduced risk and increased confidence, they ensure that the procurement system remains rigid. Evidently, a rigid system is not one that is well-placed to accept agile approaches, particularly if they involve higher risk tolerance and greater delegation.

Indeed, no tangible improvements to Canadian defence procurement timelines will be possible unless enough trust is restored to loosen the constraints that permeate the system. Rather than waiting for trust to be revived, however, it will be necessary to build it back up by accepting a trade-off between risk and results, and by accepting that failure is part of the learning process, not

[16] Jerome Rein and Matt Hasik, "The Ten Rules for Agile in Aerospace and Defense," Boston Consulting Group; accessed on 16 March 2020 at https://www.bcg.com/en-ca/industries/engineered-products-infrastructure/ten-rules-agile-aerospace-defense.aspx

a reason to stop moving forward. Certain efforts have already been put in place, including the setting of a long-term investment plan agreed to by the finance and defence departments, the adoption of accrual accounting for the defence budget, and a move toward risk-based authorities.

These are promising initiatives and they must be built upon. DND/CAF will need to be given the authority and flexibility to try out different approaches that allow them to acquire and modernize capabilities with greater speed and regularity. These approaches might include:

- Evergreen umbrella projects for ongoing capability improvements where funding can be reallocated among sub-projects by project sponsors.
- A 'colour of money' between Vote 1 and Vote 5 for high technology acquisitions that has the flexibility of Vote 1 but the funding levels and ability to acquire new capability of Vote 5.
- A fast-tracked approval and contracting processes for technological and regulatory upgrades (allowing them to skip or reduce the number of gates they must pass within DND/CAF's governance boards and/or at the Treasury Board), with high flexibility in terms of initial budgets and schedules.

This will inevitably lead to false starts, mistakes, and errors. But as long as DND/CAF are open and transparent about what went wrong and how they are learning from the errors --that they accept to be accountable for their broadened responsibilities-- it may be possible to discover mechanisms and approaches that will enable Canada to keep pace with rapid technological change in the defence sector. To be blunt, considering the government's current priorities, trust in exchange for transparency will do far more to improve defence procurement than a single agency will.

While this suggestion may appear fanciful at best and inconceivable at worst, the alternative is not sustainable or cost-effective. The Canadian military will increasingly need to acquire and maintain systems that depend on constantly evolving software and technological innovations. Rigid procedures will continue to act as an impediment to the timely procurement of these capabilities, which will degrade the operational relevance of the CAF and options available to government. Bestowing greater trust in exchange for clearer accountability may not be sufficient to avoid this outcome, but it is necessary.

About the Authors

Kalen Bennett *is an MA student at the Norman Patterson School of International Relations in Security and Defence Policy. His research focuses have included political philosophy, populism, the European Union, and defence procurement.*

Major-General (Retired) ***Doug Dempster*** *served as the Defence strategic planner, and later as NATO Assistant Secretary General for Executive Management and head of the Centre for Executive Leadership at the University of Ottawa.*

Philippe Dumas *est doctorant à l'École nationale d'administration publique (ENAP). Sa thèse porte sur les projets d'acquisition de chasseurs au Canada depuis les années 1980.*

Caroline Leprince *is a policy analyst with the Canada Border Services Agency. She previously held positions in the federal public service in the areas of national security, cyber security, and public safety. Caroline is dedicated to promoting women's leadership in the field of security and defence. As such, she sat on the board of WIIS-Canada from 2016-2017 before holding the position of executive director from 2018-2019. Caroline is an associate fellow with the Raoul-Dandurand Chair of Strategic and Diplomatic Studies and the International Centre for the Study of the Profession of Arms. Her work has been published in peer-reviewed journals, including in International Journal and Études Internationales, and she has contributed to edited volumes on Canada's foreign policy.*

Kim Richard Nossal *went to school in Melbourne, Beijing, Toronto, and Hong Kong and attended the University of Toronto, receiving his PhD in 1977. In 1976 he joined the Department of Political Science at McMaster University in Hamilton, Ontario, where he taught international relations and Canadian foreign policy, serving as chair of the Department in 1989–90 and 1992–1996. In 2001, he went to Queen's University, heading the Department of Political Studies until 2009. He served as director of the Centre for International and Defence Policy from 2011 to 2013. From 2013 to 2015, he was the executive director of the Queen's School of Policy Studies.*

David Perry *is the Vice President, Senior Analyst and a Fellow with the Canadian Global Affairs Institute. He is the host of the weekly Defence Deconstructed Podcast and author of multiple publications related to defence budgeting, transformation and procurement. He is also a columnist for the Canadian Naval Review. He received his PhD in political science from Carleton University where his dissertation examined the link between defence budgeting and defence procurement. He is an adjunct professor at the Centre for Military and Strategic Studies at the University of Calgary and a research fellow of the Centre for the Study of Security and Development at Dalhousie University.*

William Richardson *recently completed his Master's studies at the Norman Paterson School of International Affairs at Carleton University. His research focuses include western air power,*

interoperability and defence procurement. He currently works as a policy analyst at Global Affairs Canada.

***Elinor Sloan** is Professor of International Relations in the Department of Political Science at Carleton University, Ottawa, and is a former defence analyst with Canada's Department of National Defence. She is a graduate of the Royal Military College of Canada (BA), the Norman Paterson School of International Affairs at Carleton (MA), and the Fletcher School of Law and Diplomacy at Tufts University (PhD).*

***J. Craig Stone** holds a BA in Economics from the University of Manitoba and an MA and PhD in War Studies (Defence Economics) from the Royal Military College of Canada. Dr Stone joined the academic staff at Canadian Forces College (CFC) as an Assistant Professor in the summer of 2005 after 29 years in the Canadian Forces, the last five at CFC in the Strategic Studies Directorate.*

Canadian Global Affairs Institute

The Canadian Global Affairs Institute focuses on the entire range of Canada's international relations in all its forms including (in partnership with the University of Calgary's School of Public Policy), trade investment and international capacity building. Successor to the Canadian Defence and Foreign Affairs Institute (CDFAI, which was established in 2001), the Institute works to inform Canadians about the importance of having a respected and influential voice in those parts of the globe where Canada has significant interests due to trade and investment, origins of Canada's population, geographic security (and especially security of North America in conjunction with the United States), social development, or the peace and freedom of allied nations. The Institute aims to demonstrate to Canadians the importance of comprehensive foreign, defence and trade policies which both express our values and represent our interests.

The Institute was created to bridge the gap between what Canadians need to know about Canadian international activities and what they do know. Historically Canadians have tended to look abroad out of a search for markets because Canada depends heavily on foreign trade. In the modern post-Cold War world, however, global security and stability have become the bedrocks of global commerce and the free movement of people, goods and ideas across international boundaries. Canada has striven to open the world since the 1930s and was a driving factor behind the adoption of the main structures which underpin globalization such as the International Monetary Fund, the World Bank, the World Trade Organization and emerging free trade networks connecting dozens of international economies. The Canadian Global Affairs Institute recognizes Canada's contribution to a globalized world and aims to inform Canadians about Canada's role in that process and the connection between globalization and security.

In all its activities the Institute is a charitable, non-partisan, non-advocacy organization that provides a platform for a variety of viewpoints. It is supported financially by the contributions of individuals, foundations, and corporations. Conclusions or opinions expressed in Institute publications and programs are those of the author(s) and do not necessarily reflect the views of Institute staff, fellows, directors, advisors or any individuals or organizations that provide financial support to, or collaborate with, the Institute.