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DEFENCE PROCUREMENT: A WICKED PROBLEM FOR CANADIANS

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Exercise Solo Flight

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DEFENCE PROCUREMENT: A WICKED PROBLEM FOR CANADIANS

The Canadian public is frustrated with defence procurement and rightly so. Defence spending “is at its lowest level as a percentage of gross domestic product since the end of the Cold War.”¹ Since the 1990s successive governments have reduced the staff required to procure military equipment from a robust 9,000 to its current strength of below 4,000 under the current Conservative government of Stephen Harper.² The result is limited and poorly executed procurement for the Department of National Defence (DND). Various commentators, such as Andrew Coyne, believe that the newly implemented Defence Procurement Strategy (DPS) has recommitted the Government of Canada “to the same failed approach...[t]o the extent this means anything, it means more costs, more lobbying, more pork-barrelling – and less hardware for our forces in the field.”³

This paper will demonstrate that defence procurement in Canada is a wicked problem for the people of Canada and that the solution implemented by the Government of Canada will create short-term political successes vice much-needed long-term defence stability. To prove this thesis, this paper will show that there are various stakeholders who conceptually disagree on the problem surrounding defence procurement as well as any solution for solving it. The openly stated solution from the Government of Canada is to create economic growth through the cultivation of a homegrown defence industry, which will produce short-term political gains as a result of a strengthened economy.

¹ Lee Berthiaume, “Federal budget: Despite annual funding boost, defence faces uncertain times,” *Ottawa Citizen*, 21 April 2015.

² Murray Brewster, “Report attacks government over military buying delays; Cuts have left too few staff to manage system, researchers say,” *Times Colonist (Victoria)*, 15 January 2015.

³ Andrew Coyne, “Time to end procurement boondoggles; Military rust out means luxury of doing things the old way is gone,” *Montreal Gazette*, 18 November 2014.

Furthermore, it is clear that the government-integrated approach is focused on maximizing that political advantage. Unfortunately, the second order effect is that these new political constraints will degrade the defence purchasing power, limit interoperability and ultimately present a weakness in the defence of Canada and its interests abroad. Such long-term effects need to be taken into consideration to ensure an effective defence of Canada.

Defence procurement

In 1976, with the procurement of the Long Range Patrol Aircraft (LRPA), the Government of Canada introduced provisions that the manufacturer, Lockheed Aircraft Corporation, had to provide long-term economic benefit to Canada. That philosophy continued with the major procurement initiatives to date, such as: Leopard I Tank and the CF-188 Fighter Aircraft. As this philosophy evolved, the Canadian defence industry was given incentives to produce the military requirements on Canadian soil and included such major procurements as the Canadian Patrol Frigate (CPF) and Iltis Jeep⁴. The culmination of this concept was the 1987 Defence White Paper, which officially linked defence procurement with the economic development of Canada.⁵

After over two decades of that policy resonating with Canadians, the Government of Canada initially refined the concept with the National Ship Procurement Strategy (NSPS) for a renewed fleet in the Royal Canadian Navy and Canadian Coast Guard, and then more recently with the Defence Procurement Strategy (DPS), which “is based on a

⁴ The Iltis Jeep procured from Volkswagen in Germany but was contractually required to be manufactured within Canada through Bombardier Canada.

⁵ Aaron Plamondon, *The Politics of Procurement: Military Acquisition in Canada and the Sea King Helicopter*, UBC Press (2010): xii.

whole-of-government approach to defence procurement through the application of early and continuous engagement, timely and effective decision-making to guide and coordinate defence and major military procurements.”⁶ This policy purportedly balances the needs of the Canadian economy while fulfilling the requirements for DND. DPS can be said to have three pillars. “The first is to deliver the right equipment to men and women in uniform in a timely and cost-effective manner. The second is to leverage defence equipment purchases to create jobs and economic benefits in Canada. And the third is to streamline military procurement processes.”⁷

DND is not an idle partner in this process but is expected to produce a yearly Defence Acquisition Guide (DAG), which will “reflect the future operational requirements of the Canadian Armed Forces over a period of 5 to 20 years.”⁸ These requirements then form the basis to allow for Canadian defence firms to ‘re-tool’ to provide the expected needs for the Canadian Armed Forces and achieve the benefit that the Government of Canada foresees.

The aforementioned policy is intricate and involves a significant amount of stakeholders to be successful. Unfortunately for the citizens of Canada, each of the stakeholders has a different perspective and potential agenda for defence procurement. The main stakeholders and their perspectives are discussed in the following section.

Government of Canada. The first and foremost stakeholder is the very stakeholder that implemented the policy. Not only does the current majority Government of Canada

⁶ Public Works and Government Services Canada, *Defence Procurement Strategy* (Ottawa: Canada Communication Group, 2014).

⁷ Jim Quick, “Procurement strategy solves problems.” *Montreal Gazette*, 7 February 2015.

⁸ Public Works and Government Services Canada, *Defence Procurement Strategy* (Ottawa: Canada Communication Group, 2014).

want to ensure that this particular policy is successful for the country, it has an inherent self-interest. It seeks to garner favour with Canadians through a stronger economy. “Capital spending in defence is perceived as a major vehicle for promoting a variety of non-defence interests. It represents the largest single area of discretionary spending available to the federal government.”⁹ As a result, the government introduced the Canadian Forces Defence Strategy (CFDS), which “commits to a total investment of \$490 billion in personnel, equipment, readiness and infrastructure, of which \$240 billion is allocated to procurement in the latter three categories.”¹⁰ Increased growth and a strong economy will resonate with voters even if it results in a slightly decreased capacity in National Defence.

Defence Industry in Canada. This emerging private sector is not only lobbying government for increased contracts but is also increasingly tying operational effectiveness to their well-being through continued in-service support. The largest association of this sector is the Canadian Association of Defence and Security Industries (CADSI) and “is the national voice of more than 1,000 member companies operating in the defence and securities industrial sector.”¹¹ Their perspective is clear: to receive and profit from defence contracts in Canada and abroad. Being given preferential treatment regarding contracts for DND, as is inherent in the new DPS, is not only the ideal solution but the goal their lobbyists have been striving for since the 1970s.

⁹ Stephen Martin, *The Economics of Offsets: Defence Procurement and Countertrade*, Routledge Studies in Defence and Peace Economics, Routledge (2014): 110.

¹⁰ Tom Jenkins, “Canada First: Leveraging Defence Procurement through Key Industrial Capabilities.” *Public Works and Government Services Canada* (February 2013): ix.

¹¹ Canadian Association of Defence and Security Industries, “What we are about,” Last accessed on 13 May 2015, <https://www.defenceandsecurity.ca/>.

Defence Industry outside of Canada. This relatively nebulous category has varied participants. The countries allied with Canada around the world are all trying to increase defence industries resident within their borders, as is Canada. While they generally compete with one another and have limited association, they do produce a consistent effect, namely increased demand for improved military technology. With continual research and development, military equipment quickly becomes out of date and is therefore perceived to be ineffective. This constant innovation results in the continued pressure to spend further on defence technology in order to stay current or “safe”.

Department of National Defence. Increasingly called upon to respond to conflicts or global defence priorities since the mid-2000 in Afghanistan, DND is an organization that is in need of investment. The Government of Canada has “publicly promised to keep 68,000 full-time military members and 27,000 reservists in uniform.”¹² A relatively small military, the CAF will almost always contribute troops within an alliance such as North American Aerospace Defence (NORAD); North Atlantic Treaty Organization (NATO); the United Nations (UN); or some other coalition of the willing for a given situation. Unilateral action by Canada now only seems to come within humanitarian relief operations. DND has also been subjected to systematically reduced defence budget and public servants employees since 2013, thereby limiting it’s flexibility to react to new conflicts as well as its other mandates. With public scrutiny at an all time high on their internal procurement processes, the DPS can be seen within DND as another bureaucratic process that will yield less equipment over a longer period, as well as equipment that is not necessarily interoperable that with our allies, thereby decreasing capability.

¹² Lee Berthiaume, “Canadian military facing shortfall of personnel,” *Ottawa Citizen*, 14 December 2015.

Why defence procurement is a wicked problem

Wicked problems are prevalent features in all societies today. By definition, wicked problems are “imperfectly understood, and so initial planning boundaries that are drawn too narrowly may lead to a neglect of what is important in handling the wicked issues. It is in this unforeseen interconnection that policy problems grow and policy failures arise.”¹³ This is certainly the danger with defence procurement in Canada with the current model that is being applied.

To fully ascertain whether defence procurement is really a wicked problem, this paper will use the salient aspects of Skaburiskis’ model classification of being a wicked problem. There is no definite formulation of the problem concerning defence procurement, as the security situation changes around the world, the economic focus changes within Canada and relative health and political persuasion of the Government of Canada changes and therefore the relationship between procurement and defence efficacy is varied.

Additionally, one must understand the relevant stakeholders and their perspectives to come to understand the problem in that time and space. Conceptually, the stakeholders in the procurement issue understand one another, even if their perspectives are opposed, as in the case of DND and the Government of Canada. When examining a wicked problem, there are no definitive correct or incorrect answers. In the defence procurement dilemma this is also true: while purely national procurement has certain advantages (in

¹³ Australian Public Service Commission, “Tackling wicked problems - A public policy perspective,” Last accessed on 13 May 2015, http://www.apsc.gov.au/__data/assets/pdf_file/0005/6386/wickedproblems.pdf, 11.

service support, continuity of product service and potential insulation from espionage), so to does foreign procurement of technology (in terms of interoperability with allies, cheaper pricing & accessing proven technology).¹⁴ After consideration of Skaburiskis' model, it can be assessed that defence procurement interrelated with economic benefit to Canada is a wicked problem. With the defence procurement problem assessed as such, one might now turn to Val Morrison, who has articulated an approach with which to address wicked problems.

Morrison argues that “wicked problems require leadership where the role of leaders is to ask questions and collaborate with others on finding the best ways to approach the problem.”¹⁵ In support of that assessment, the Australian Public Service Commission notes that that besides leadership the “other key ingredients in solving or at least managing complex policy problems include successfully working across both internal and external organisational boundaries and engaging citizens and stakeholders in policy making and implementation.”¹⁶ Unfortunately, the leaders and those responsible for consulting stakeholders and their needs in this scenario, namely the Government of Canada, are one of the key stakeholders in this wicked problem and they are committed to a short-term solution while seemingly paying lip service to the other considerations, specifically long-term defence consideration and interoperability with allies.

The political short-term ‘good enough’ approach

¹⁴ Andrejs Skaburiskis, "The Origin of 'Wicked Problems'." *Planning Theory & Practice* 9, no. 2 (June 2008): 279.

¹⁵ Val Morrison, "Wicked Problems and Public Policy," National Collaborating Centre for Healthy Public Policy (June 2013): 5.

¹⁶ Australian Public Service Commission, “Tackling wicked problems - A public policy perspective,” Last accessed on 13 May 2015, http://www.apsc.gov.au/__data/assets/pdf_file/0005/6386/wickedproblems.pdf, 13.

As has been previously noted, this economy-first strategy has been in place since the 1970s in some form or another. In 2010 the Government of Canada announced the National Shipbuilding Procurement Strategy (NSPS) to reinvigorate the declining Royal Canadian Navy and Canadian Coast Guard fleets. “Under the NSPS, the government has established a strategic relationship with two Canadian shipyards (Irving Shipbuilding Inc. in Halifax for combat vessels and Seaspan in North Vancouver for non-combat vessels) and designated them as sources of supply to build the government’s large ships.”¹⁷ Admittedly, this commitment will support thousands of Canadian families over 2 – 3 decades with high-paying jobs in an economically depressed area of the Maritime Provinces. The reality after five years is that a ship has yet to emerge from the NSPS¹⁸ and as Murray Brewster so aptly opined “once there are delays, projects lose their buying power because of the corrosive effect of inflation, which means the military ends up with either few pieces of equipment or less capable gear.”¹⁹ The solution implemented by the stakeholder with the power, namely the Government of Canada, fails to meet the demands put forward by the security environment.

In the image of the NSPS model, and completely ignoring the lessons of previous procurement policies, the DPS was recently brought into force and attempts to go further in carving out areas for development called Key Industrial Capabilities (KICs) that will be areas of focus for the defence industry to provide nationally at the start and then internationally once proven. Tom Jenkins posits that “a KICs-centred defence

¹⁷ Tom Jenkins, "Canada First: Leveraging Defence Procurement Through Key Industrial Capabilities." *Public Works and Government Services Canada* (February 2013): 2.

¹⁸ Terry Milewski, “Canada's vast shipbuilding plan still at starting line,” Last accessed on 13 May 2015, <http://www.cbc.ca/news/politics/canada-s-vast-shipbuilding-plan-still-at-starting-line-1.3058147>.

¹⁹ Murray Brewster, “Report attacks government over military buying delays; Cuts have left too few staff to manage system, researchers say,” *Times Colonist (Victoria)*, 15 January 2015.

procurement strategy would not be without cost. For example, there may be extra risk to supporting a home-based supplier of a sophisticated product, or some price premium relative to lowest cost globally.”²⁰ To amplify that concept, it would therefore seem the Government of Canada believes that the relatively low buying power in the Canadian defence industry is a continued acceptable risk as it will further the Canadian defence industry to be competitive overseas and ultimately benefit Canadians at home.

Jenkins further notes that “until a new product is proven; it is unlikely that it can be marketed outside of the domestic market.”²¹ The implications are clear: new technology must be innovated and sustained by the Government of Canada until such time as there has been demand created internationally for a given product. Manipulating the free market to favour the Canadian economy artificially supports an industry that wouldn’t likely occur without assistance. This Keynesian approach to defence procurement has and will continue to increase costs and decrease the efficacy of DND.²² Moreover, it is not a sustainable approach.

The Government of Canada has cut the defence budget at the same time as it has implemented DPS, effectively negating gains of the defence industry. “CADSI pointed out that DND's decision to reduce its national procurement budget by 20 per cent "is

²⁰ Tom Jenkins, "Canada First: Leveraging Defence Procurement Through Key Industrial Capabilities." *Public Works and Government Services Canada* (February 2013): 3.

²¹ Tom Jenkins, "Canada First: Leveraging Defence Procurement Through Key Industrial Capabilities." *Public Works and Government Services Canada* (February 2013): xii.

²² Sarwat Jahan, Ahmed Saber Mahmud, and Chris Papageorgiou, “What Is Keynesian Economics?” Last accessed on 13 May 2015.
<http://www.imf.org/external/pubs/ft/fandd/2014/09/basics.htm>.

resulting in significant layoffs within the Canadian defence sector." That budget is used to fund maintenance and the purchase of spare parts."²³

Astoundingly, the evidence does not display that the benefits are reaching Canadians or the economy in general. Federal cabinet minister, Diane Finley "has called out the defence industry for failing to make more than \$5-billion in investments into the Canadian economy that had been promised as a condition for winning military contracts."²⁴ Those investments into the Canadian workforce and economy have not happened and the CAF has paid the price for reduced capability at the same time. The lack of congruence in the Government of Canada policies will ultimately lead to policy failure in the long-term but not before the short-term political gains have been achieved.

Long-term ramifications that should be considered

With the emphasis on the Canadian economy, there are significant long-term impacts to the CAF. Firstly, interoperability is impacted when the Government of Canada decides not to procure assets from or with its allies. In the case of the F35, Canada endeavoured to develop a solution with its allies that is technologically advanced and could potentially remove the burden of having an isolated supply chain for a national platform not in use by other allies. An autonomous solution that is not developed in concert with our allies will limit CAF flexibility in expeditionary operations in terms of a consolidated supply chain in potentially austere environments.

²³ David Pugliese, "DND cuts lead to layoffs at suppliers," *Ottawa Citizen*, 29 September 2014.

²⁴ Lee Berthiaume, "Diane Finley calls out defence industry, saying it owes Canada billions in economic activity," *National Post*, 6 February 2014.

Secondly, the premium that Canadians are paying for Canadian solutions is limiting the ability of the CAF to procure more equipment for its defence needs. As James Lehre documented, the “Canadian Patrol Frigate ultimately cost only 7% more (roughly \$28 million per ship) on average than seven other similarly sized foreign warships.”²⁵ This added cost, ultimately amounting to corporate welfare, was an acceptable overage in spite of the fact that it cost the military more capability in the long-term. As a direct result of this policy there was an extra \$200 million dollars spent on the CPFs vice other defence priorities in the 1990s. This lack of flexibility when making large defence procurements limits the depth of the CAF.

Lastly, the real impact is defence capability within Canada. After years of promises, the Government of Canada signed a contract for a Heavy Icebreaker for the Canadian Coast Guard. As a result of delays and further announcements about other ships, the delivery date was pushed from 2013/14 to 2021 and the price jumped from \$720 million dollars to 1.3 billion dollars, almost double due to inflation.²⁶ A similar whittling down of capabilities has happened with the RCN ships. The number of ships that will eventually be delivered will be reduced due to inflation.²⁷ Undoubtedly, a comparable inflationary impact will occur with the replacement for the aging CF-188 fleet. Regardless, the reduced numbers of ships, airplanes and trucks directly translates

²⁵ Eric James Lerhe, *The National Shipbuilding Procurement Strategy: An Update*, Canadian Defence & Foreign Affairs Institute (2013): 8.

²⁶ Michael Byers, “Why Canada’s search for an icebreaker is an Arctic embarrassment,” Last accessed on 13 May 2015, <http://www.theglobeandmail.com/news/national/the-north/why-canadas-search-for-an-icebreaker-is-an-arctic-embarrassment/article16425755/>.

²⁷ Michael Byers, “Why Canada’s search for an icebreaker is an Arctic embarrassment,” Last accessed on 13 May 2015, <http://www.theglobeandmail.com/news/national/the-north/why-canadas-search-for-an-icebreaker-is-an-arctic-embarrassment/article16425755/>.

into reduced capacity for the DND. A lack of long-term vision, further compromised by short-term vote-seeking policies, may endanger the Canadian public in the future.

What is clear is that the Government of Canada has lent its ear to the stakeholders of the Canadian defence industries and international defence industries with their intent on procuring new technologies for DND. What is also clear is that DND's institutional credibility, allowing it to provide advice on capabilities and procurement purchases is also at an all time low given the poor execution of the F-35 JSF program and the Sea King replacement program. This has resulted in the defence lobbyists providing advice on capabilities instead of Canada's Senior Military Officers. In the end, the Government of Canada has proven a willingness to capitalize on short-term political wins of a boosted economy even if it means dramatically overpaying for a limited capability which, in the long-term, may cripple Canada's defensive abilities.

Conclusion

Markowski et al asserted that "defence procurement policy...has two general objectives: (1) to access and/or form dependable supply chains to form and maintain defence capabilities in the required state of operational readiness; and (2) to buy what is needed cost effectively and in accordance with Defence's quality and schedule requirements."²⁸ The Government of Canada has introduced a third dimension, specifically economic benefit to Canada, to the equation that deflates the primacy of the first two. This short-term approach has been shown to negatively impact the capabilities of DND in the past and will continue to do so as long as it is employed. Longer-term

²⁸ Stefan Markowski, Peter Hall, and Robert Wylie, eds. *Defence procurement and industry policy: a small country perspective*. Routledge (2009): 3.

considerations must be taken into account to adjust for an evolving solution, such as the research on wicked problems suggests.

The continual examples in history demonstrate that “there is an ever-present danger in handling wicked issues that they are handled too narrowly.”²⁹ The long-term considerations about which Canadians should be concerned have been sidelined with political announcements regarding the DPS and what that means for Canada’s recovering economy. A renewed focus by the Government of Canada regarding such long-term considerations as interoperability with allies, and achieving maximum defence assets with the minimal budget allotted, must be undertaken. Failure to do so will provide a real and significant risk to the defence of Canada and its interests abroad.

²⁹ Australian Public Service Commission, “Tackling wicked problems - A public policy perspective,” Last accessed on 13 May 2015, http://www.apsc.gov.au/__data/assets/pdf_file/0005/6386/wickedproblems.pdf, 12.

BIBLIOGRAPHY

- Australian Public Service Commission. "Tackling wicked problems - A public policy perspective." Last accessed on 13 May 2015. http://www.apsc.gov.au/__data/assets/pdf_file/0005/6386/wickedproblems.pdf.
- Berthiaume, Lee. "Canadian military facing shortfall of personnel." *Ottawa Citizen*. 14 December 2015.
- Berthiaume, Lee. "Diane Finley calls out defence industry, saying it owes Canada billions in economic activity." *National Post*. 6 February 2014.
- Berthiaume, Lee. "Federal budget: Despite annual funding boost, defence faces uncertain times." *Ottawa Citizen*, 21 April 2015.
- Brewster, Murray. "Report attacks government over military buying delays; Cuts have left too few staff to manage system, researchers say." *Times Colonist (Victoria)*. 15 January 2015.
- Byers, Michael. "Why Canada's search for an icebreaker is an Arctic embarrassment." Last accessed on 13 May 2015. <http://www.theglobeandmail.com/news/national/the-north/why-canadas-search-for-an-icebreaker-is-an-arctic-embarrassment/article16425755/>.
- Canada. Public Works and Government Services Canada. "Defence Procurement Strategy." (September 2014).
- Canadian Association of Defence and Security Industries. "What we are about." Last accessed on 13 May 2015. <https://www.defenceandsecurity.ca/>.
- Coyne, Andrew. "Time to end procurement boondoggles; Military rust out means luxury of doing things the old way is gone." *Montreal Gazette*. 18 November 2014.
- Den Tandt, Michael. "At DND, Kenney faces greatest challenge; Good luck trying to fix Canada's giant military procurement mess." *Edmonton Journal*. 25 February 2015.
- Edler, Jakob, and Luke Georghiou. "Public procurement and innovation—Resurrecting the demand side." *Research policy* 36, no. 7 (2007): 949-963.
- Fergusson, James. "In search of a strategy: the evolution of Canadian defence industrial and regional benefits policy." *The Economics of Offsets: Defence Procurement and Countertrade* (2014): 107.
- Hartley, Keith. "Defence industrial policy in a military alliance." *Journal of Peace Research* 43, no. 4 (2006): 473-489.

- Jahan, Sarwat, Ahmed Saber Mahmud, and Chris Papageorgiou. "What Is Keynesian Economics?" Last accessed on 13 May 2015. <http://www.imf.org/external/pubs/ft/fandd/2014/09/basics.htm>.
- Jenkins, Tom. "Canada First: Leveraging Defence Procurement Through Key Industrial Capabilities." *Public Works and Government Services Canada* (February 2013).
- Lerhe, Eric James. *The National Shipbuilding Procurement Strategy: An Update*. Canadian Defence & Foreign Affairs Institute, 2013.
- Markowski, Stefan, Peter Hall, and Robert Wylie, eds. *Defence procurement and industry policy: a small country perspective*. Routledge (2009).
- Martin, Stephen. *The Economics of Offsets: Defence Procurement and Countertrade*, Routledge Studies in Defence and Peace Economics, Routledge (2014).
- Milewski, Terry. "Canada's vast shipbuilding plan still at starting line." Last accessed on 13 May 2015. <http://www.cbc.ca/news/politics/canada-s-vast-shipbuilding-plan-still-at-starting-line-1.3058147>.
- Morrison, Val. "Wicked Problems and Public Policy." *National Collaborating Centre for Healthy Public Policy* (June 2013).
- Plamondon, Aaron. *The politics of procurement: military acquisition in Canada and the Sea King helicopter*. UBC Press (2010).
- Pugliese, David. "DND cuts lead to layoffs at suppliers." *Ottawa Citizen*. 29 September 2014.
- Skaburskis, Andrejs. "The Origin of 'Wicked Problems'." *Planning Theory & Practice* 9, no. 2 (June 2008): 277-280.
- Quick, Jim. "Procurement strategy solves problems." *Montreal Gazette*. 7 February 2015.