Strategic and Operational Considerations for Canadian Naval Shipbuilding

Timothy Choi

Recent opinion pieces in Canadian media, perhaps most vocally by former Assistant Deputy Minister (Material) Alan Williams, have painted bleak pictures of the Canadian navy's future: its new warships cost twice as much as reasonable alternatives, the shipyard responsible for their construction should be up for rebidding (including overseas proposals) to ensure more competitive bids, and the ships' operational costs would bankrupt DND for decades to come.[1] All these emphases on cost, however, ignore the strategic worlds in which the future RCN fleet will operate and where Canadian shipbuilding takes place. They also ignore the drastic increase in defence spending that has been budgeted in the current defence policy, *Strong, Secure, Engaged,* while making potentially outdated assumptions regarding warships' capital-to-operational costs ratio. This article seeks to expand the popular conversation regarding Canadian naval shipbuilding to incorporate non-monetary trade-offs while also bringing some nuance to existing cost concerns.

Firstly, some context: it may surprise Canadian readers to know that the world's largest navy is no longer their superpower neighbour to the south. Rather, that distinction now belongs to the same country currently holding Canadian citizens hostage as political pawns and which the Canadian government recognizes as carrying out an ongoing genocide: China has been churning out naval vessels of various sizes at a rate unmatched since the United States in the Second World War with no signs of slowing.[2] These are being supported by an ever-improving inventory of land-based anti-ship ballistic missiles which can hold at risk naval vessels thousands of kilometres into the Pacific. While the combat reliability, survivability, and crew competencies of the Chinese navy remain uncertain, each of their new warships are armed with modern anti-ship missiles that cannot be ignored – as the old saying goes, "quantity has a quality all of its own." With ongoing maritime disputes astride the world's busiest sea lanes, it is clear the oceans will be a major

site of international competition between the liberal democracies and authoritarian states.

This means the Canadian navy needs ships that are as capable as possible to maximize Canadian confidence in sending them into harm's way as part of the country's foreign policies. For Canada, ensuring this capability is especially challenging due to the fleet being split between the Pacific and Atlantic coasts: it essentially operates as two smaller navies. Each fleet faces the rule of thumb that if you want one ship, you need three: one in regular maintenance, one in training/transit, and one deployed. To save costs, Williams suggested a mixed fleet of three expensive air-defence warships combined with a larger fleet of cheaper options, but this will not be operationally reliable: if the coast with only one air-defence ship needs it to deploy but it happens to be in drydock for maintenance, then that coast has no backup option. Such a problem would be ameliorated if at least three ships per coast had the same air-defence capability, but that would cut drastically into any cost savings. Given the half-century lifespan of not just individual ships, but the entire fleet, one cannot bet on the long-term relevance of a low-end combatant as the only ships Canada can reliably deploy. While Williams asserts the RCN has previously been successful at running a "mixed fleet of destroyers and frigates", that does not mean that it was ever optimal – never mind sufficient for the world of the next fifty years.[3] Unlike the Cold War, even smaller coastal submarines now have anti-ship missiles requiring antisubmarine warships to have advanced air defence systems. American naval experts have deemed their relatively low-cost Littoral Combat Ship a failure in the new world of great power competition: even those ships' modular approach with reconfigurable spaces are insufficient to save them from needing integrated sensors, hull silencing, and mechanical-electrical equipment to support high-end combat.

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So a high-low mix is out of the question. What about a different high-end ship that promises to be cheaper? One proposal is for Canada to re-run the competition, confident that a much less expensive design is available. The alternative that Williams highlights is the last-minute Franco-Italian offering of the "FREMM" (Frégate européenne multi-mission) in December 2017. The bidders guaranteed a fleet of 15 ships at only $30 billion, roughly half the CSC's budget. However, the bidders never submitted a formal proposal through the process that all other bidders had to comply with.[4] In other words, the $30b figure was submitted without, seemingly, the necessary homework to show how they intended to meet Canada's industry requirements. Such lack of transparency and blind trust in foreign defence companies go directly against Williams' and Rubin's critique of handing too much decision-making power to the prime contractor. As the saying goes, "if it sounds too good to be true…" This also does not include the amount of time required to reassess all potential bids. While Williams claims this should not cause any delays by citing the relatively rapid American process that led to their selection of the FREMM for their frigate program, this makes the ambitious assumption that Canada has the same procurement expertise and capacity as the superpower United States.

But ships need shipyards to build them. Excluding nuclear-powered vessels, the United States today has only two shipyards that produce major surface combatants.[5] This will increase to three to build their new frigates, but this means Canada will, by 2030, provide roughly 25% of North America's high-end surface combatant shipbuilding capacity if we maintain our course. North America cannot afford to give up this capability in an age where authoritarian states are outbuilding the liberal democratic allies. Indeed, should the Americans find their strategic need for ships more urgent than avoiding angering domestic industry, Canadian shipyards might find

themselves in a position to help put more hulls into the water. While some commentators have suggested Canada purchase ships from foreign yards,[6] this would be a strategic folly: billions of dollars would be held up overseas to the goodwill of the contracted country for years, if not decades, while the fleet is being built. This will constrain Canada's foreign policy freedom, where we will not be able to criticize the country in question should it engage in objectionable behaviour resulting from an unfavourable election or another major power's coercion. Some of Europe's most powerful countries have already proven themselves unable to resist the lure of lucrative Chinese investments or have adopted morally questionable practices towards refugees.[7] There is also the complementary concern that the contracted country may fail to deliver the ships to Canada either due to their own disagreement with Canadian policies or their own immediate military requirements that may see their seizure of the ships for their own use. This has happened in the past: the British decision to confiscate a pair of battleships they were building for the Ottoman Empire is often cited as a contributing factor to the latter joining the Central Powers in the First World War; more recently, France refused to deliver two amphibious assault ships to Russia after the latter's 2014 annexation of Crimea. While Canada is unlikely to ever carry out an action quite as egregious and objectionable to world order, it is uncertain what foreign policies Canada or the contracted country may adopt (or be forced to adopt by third parties) over the next fifteen years while the ships are built. A navy, after all, supports and enables a country's foreign policy, not holds it hostage.

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But should one find such operational and strategic arguments unconvincing, one can examine some of the cost assertions more closely. Williams claims that at $286b in lifecycle costs, the CSCs will consume the entirety of the CAF's capital and maintenance budget. Firstly, it is misleading to compare the lifecycle costs of CSC with just the capital budget of the rest of the CAF: either compare lifecycle costs for both CSC and non-CSC equipment, or compare only their capital costs. Mixing them up only muddies the waters. Secondly, *Strong, Secure, Engaged* already plans for a dramatic increase in not just capital spending, but operational budget as well: combined, they increase from $18.7 billion in 2017 to an average of $30 billion per year in the 2030s. Assuming this figure is sustained, one can multiply it by the planned 30 years of the CSC's lifespan, resulting in a total of $900 billion - far above the $286 billion lifecycle cost that Williams is concerned about. For a maritime nation dependent directly and indirectly on seaborne trade and where most military threats will be overseas, spending a third of the defence budget throughout the lifespan of the navy's only major surface warships would seem far from excessive. If anything, Canadian strategic priorities should see the navy occupy a greater proportion of the budget compared to the other branches. But regardless, much, if not all, of the operating costs of the CSC appear to be already incorporated in the existing defence budget framework contingent upon continual support from future governments. Thirdly, the $286b figure assumes the 1:3 capital-to-operational cost ratio formula employed by DND remains accurate in the case of CSC and its potential alternatives. Recent developments in the United States illustrate that such a formula may no longer apply. The American Littoral Combat Ships, for instance, cost only a quarter to acquire compared to the frontline *Arleigh Burke*-class destroyers but require 62-86% of the latter's operational costs.[8] Clearly, a low-end capability with its accompanying lower acquisition costs does not guarantee corresponding operational cost savings. Accordingly, springing for a CSC design with lower acquisition costs may not result in as much operational cost savings as the generic cost formula would suggest. Indeed, given the fact that over half of a warship's operational costs comes from the crew, it would seem half the ships' operational costs would be immutable: the FREMM's maximum accommodation of 200 personnel is nearly identical to the CSC's 204.[9]

Williams may well be right on the cost issue: shipbuilding is difficult and will require an increase in

Canada's woeful rate of defence spending, which currently sits 25th out of 29 NATO members despite being in the top ten richest countries in the world.[10] However, the difference between continuing on the current CSC course versus the *at best* situation of a half-priced alternative is a mere 1.3% of the Canadian government's annual budget.[11] Although an enormous sum in absolute terms, the COVID-19 situation has shown how the ceiling for the federal government's budget could be dramatically raised so long as core Canadian interests are at stake. Whether warships and their associated role in foreign policy fall under this category is up for debate, but there needs to be a recognition of such non-monetary concerns when alternative procurement approaches are considered.

At the end of the day, it all comes down to Canada's national ambition: Canada is a wealthy G7 nation with one of the world's largest economies in excellent credit standing. Countries with much fewer resources have managed to establish domestic naval shipbuilding industries to help provide for their own and allied defence requirements. There is no insurmountable reason why Canada cannot do the same so long as Canadians deem it to be worth doing. A discussion of that nature must go beyond monetary costs to include military, operational, strategic, and political concerns.

Timothy Choi is completing his Ph.D. at the University of Calgary's Centre for Military, Security and Strategic Studies, where his dissertation is entitled, "Maritime Strategies of the North: The Seapower of Smaller Maritime Forces in an Era of Broadened Security." Tim is a fellow with the Canadian Global Affairs Institute and a former Smith Richardson Predoctoral Fellow at Yale University's International Security Studies, where he worked with Professor Paul Kennedy. He is also a Research Fellow at Dalhousie University's Centre for the Study of Security and Development and a Fellow with the Canadian Global Affairs Institute. He serves on the editorial board of and is the photo editor at the Canadian Naval Review, and is currently a consultant on naval affairs for the British American Security Information Council.

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Notes

[1] Alan Williams, "Why is Canada paying so much for 15 CSC combat ships?" *The Hill Times*, April 29, 2021, https://www.hilltimes.com/2021/04/29/295475/295475; Ken Rubin, "Secrecy surrounds fees paid to Irving for Canada's 15 multi-billion-dollar warships," *The Hill Times*, April 29, 2021, https://www.hilltimes.com/2021/04/19/secrecy/293024; Scott Gilmore, "It's time to ban the buying of made-in-Canada warships," *Maclean's*, February 25, 2021, https://www.macleans.ca/opinion/its-time-to-ban-the-buying-of-made-in-canada-warships/.

[2]Andrew S. Erickson, "A Guide to China's Unprecedented Naval Shipbuilding Drive," *The Maritime Executive*, February 11, 2021, https://www.maritime-executive.com/editorials/a-guide-to-china-s-unprecedented-naval-shipbuilding-drive.

[3]Williams, "Why is Canada paying so much."

[4] Pierre Tran, Tom Kington, and David Pugliese, "Bold move backfires as Canada declines Naval Group-Fincantieri frigate offering," *Defense News*, December 6, 2017, https://www.defensenews.com/industry/2017/12/06/bold-move-backfires-as-canada-declines-naval-group-fincantieri-frigate-offering/.

[5] Jerry Hendrix, "Why America Must Be A Seapower," *National Review*, May 13, 2021, https://www.nationalreview.com/magazine/2021/06/01/why-america-must-be-a-sea-power/#slide-1. The only major American surface combatant currently produced is the *Arleigh Burke* class destroyer, which are built at

Bath Ironworks in Maine and Huntington Ingalls Shipbuilding in Mississippi.

[6] Gilmore, “It’s time to ban the buying of made-in-Canada warships.”

[7] Hans von der Burchard, ”Merkel pushes EU-China investment deal over the finish line despite criticism,” *Politico*, December 29, 2021, https://www.politico.eu/article/eu-china-investment-deal-angela-merkel-pushes-finish-line-despite-criticism/; Megan Williams, “These rescuers want to save refugees fleeing Libya by sea. But they're trapped on shore by red tape,” *CBC News*, April 30, 2021, https://www.cbc.ca/news/world/these-rescuers-want-to-save-refugees-fleeing-libya-by-sea-but-they-re-trapped-on-shore-by-red-tape-1.6007111; “France: Police Expelling Migrant Children,” *Human Rights Watch*, May 5, 2021, https://www.hrw.org/news/2021/05/05/france-police-expelling-migrant-children.

[8] David Larter, “High operating costs cloud the future of littoral combat ships, budget data reveals,” *Defense News*, April 12, 2021, https://www.defensenews.com/naval/2021/04/12/high-operating-costs-cloud-the-future-of-littoral-combat-ships-budget-data-reveals/.

[9] Renee Chow, Ramona Burke, and Dennis Witzke, “A Systems Approach to Naval Crewing Analysis: Coping with Complexity,” *Canadian Naval Review* 11, no. 3 (2016), 16; David Larter, “We spent 3 days on a top contender for the Navy’s future frigate. Here’s what you need to know,” *Defense News*, May 30, 2018, https://www.defensenews.com/naval/2018/05/30/we-spent-3-days-on-a-top-ffgx-contender-heres-what-you-need-to-know/. While the Italian FREMM has a crew of 167, it has spare accommodations for a total of 200. It is assumed that the CSC’s publicized “Accommodations” figure of 204 persons similarly includes spare capacity.

[10] NATO Public Diplomacy Division, “Defence Expenditure of NATO Countries (2014-2021),” *NATO*, June 11, 2021, https://www.nato.int/nato_static_fl2014/assets/pdf/2021/6/pdf/210611-pr-2021-094-en.pdf; The World Bank, “GDP (Current US$),” *The World Bank*, 2021, https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?most_recent_value_desc=true. Canada drops out of the top 10 if one uses GDP per capita since that pushes sundry small states such as Luxembourg and Monaco to the top.

[11] Based on the difference between the current DND’s estimate of CSC’s $60 billion acquisition cost versus the unsolicited $30 billion FREMM bid by Naval Group-Fincantieri, multiplied by four according to the existing capital-to-operational costs formula to include lifecycle costs, divided by the ships’ 30-year lifecycle, and then compared to the Government of Canada’s annual budget of approximately $300 billion:https://www.tbs-sct.gc.ca/ems-sgd/edb-bdd/index-eng.html#orgs/gov/gov/infograph/financial. In reality, the difference would be even less due to the aforementioned constant of crew size plus other externalities such as increased program management costs for rerunning the competition, decreased shipyard learning curve benefits, and doubling supply chain requirements to support a two-class fleet.

Naval Association of Canada
www.navalassoc.ca
1138 Sauterne Pk, Ottawa, ON,
K1C 2N8