TRIPLE HELIX

What Implementation for Continuous Capability Sustainment?

Study of the Royal Canadian Navy

by William Richardson

March 2025

POLICY PERSPECTIVE

WHAT IMPLEMENTATION FOR CONTINUOUS CAPABILITY SUSTAINMENT?

STUDY OF THE ROYAL CANADIAN NAVY

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This piece is part of a study examining how a continuous capability sustainment (CCS) approach will affect Canadian Armed Forces (CAF) projects. This paper outlines the application of CCS for Royal Canadian Navy (RCN) surveyed projects.

This paper covers 13 current RCN projects, many of which are at different project phases. Survey results are first presented and analyzed together, then by project, and finally by category. This trifurcated approach is intended to show which projects may be most suitable for CCS both in general and in specific categories, and to provide greater detail on individual CCS indicators.

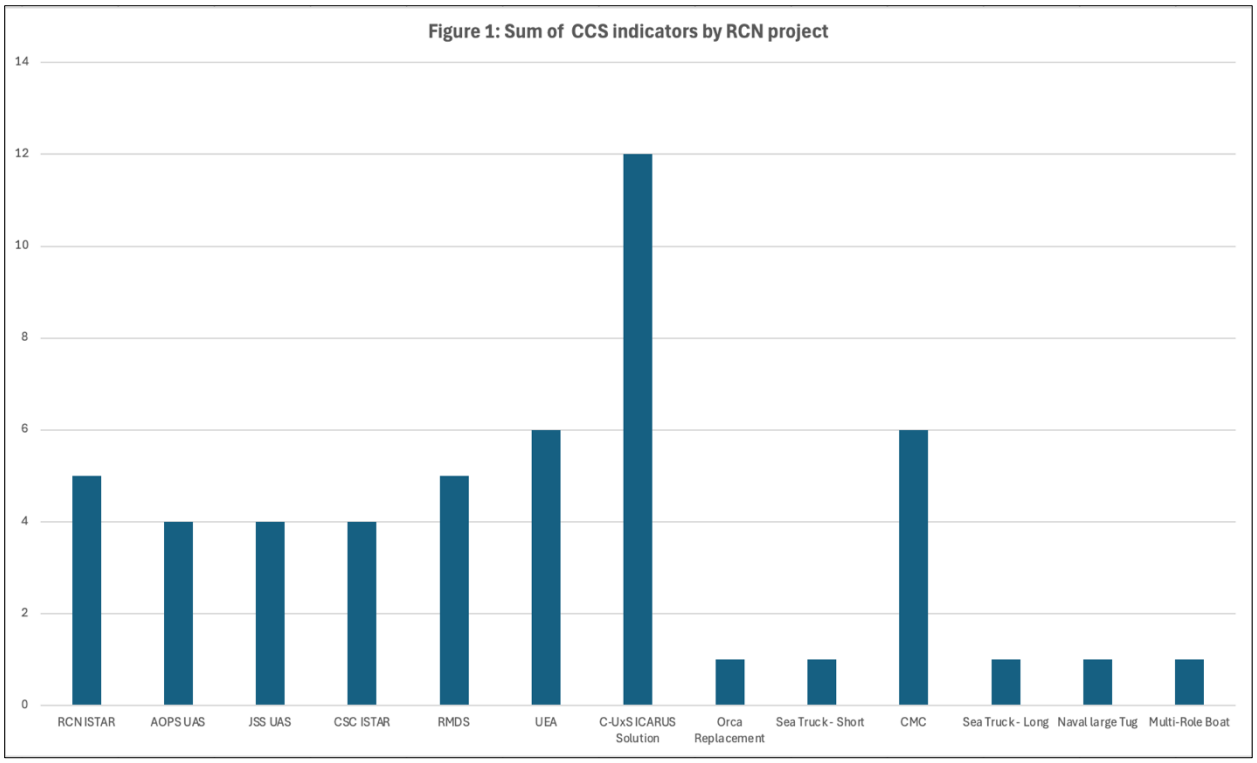


Figure 1 presents the CCS indicators by RCN project. Our assumption is that projects with higher CCS indicator scores may be more suitable at this time for through-life CCS. It is important to note, however, that projects in a more advanced project phase are likely to score higher in Figure 1 than those projects in an earlier phase because more analysis and future planning has taken place. The Maritime Counter-Unmanned Systems (C-UxS) ICARUS Solution, which represents a variety of Minor RCN Projects that will form a system of systems of C-UxS detection and mitigation solutions, is identified in Figure 1 as the current most promising project for the adoption of a through-life CCS model. This project registers 12/13 CCS indicators. In the additional qualitative context provided, the RCN recognizes that uncrewed aerial system (UAS) technology is now evolving so rapidly that most defensive systems become obsolete within two years of development. To maintain parity with the threat, the RCN anticipates that the future C-

UxS ICARUS Solution will require a technology refresh or full replacement every two to three years.

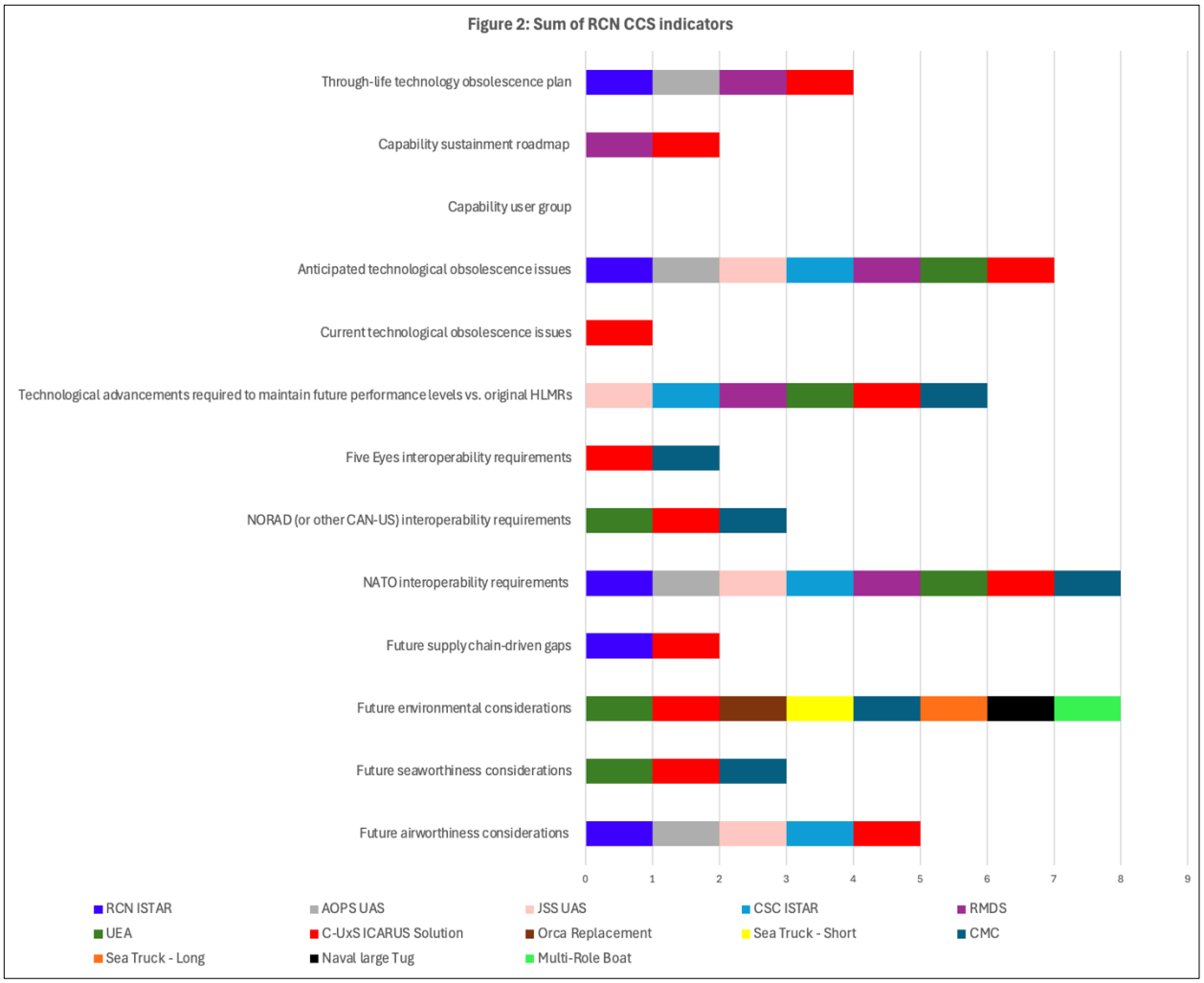


Figure 2 presents all RCN "yes" responses. It indicates that the CCS indicators captured in the survey questions are indeed reflected in a range of current RCN projects. Figure 2 also highlights the CCS indicators which show up across the most projects. Future technological obsolescence issues have been anticipated in 54 percent of surveyed projects, evolving NATO interoperability requirements will likely require future investment in 62 percent of surveyed projects, and future environmental considerations are expected to require future investment in 62 percent of surveyed projects. Similar to the other services, CCS may be most effective in supporting the through-life sustainment of future RCN capabilities through technology inserts and interoperability management; optimizing RCN force development for this could reduce future costs and efforts.

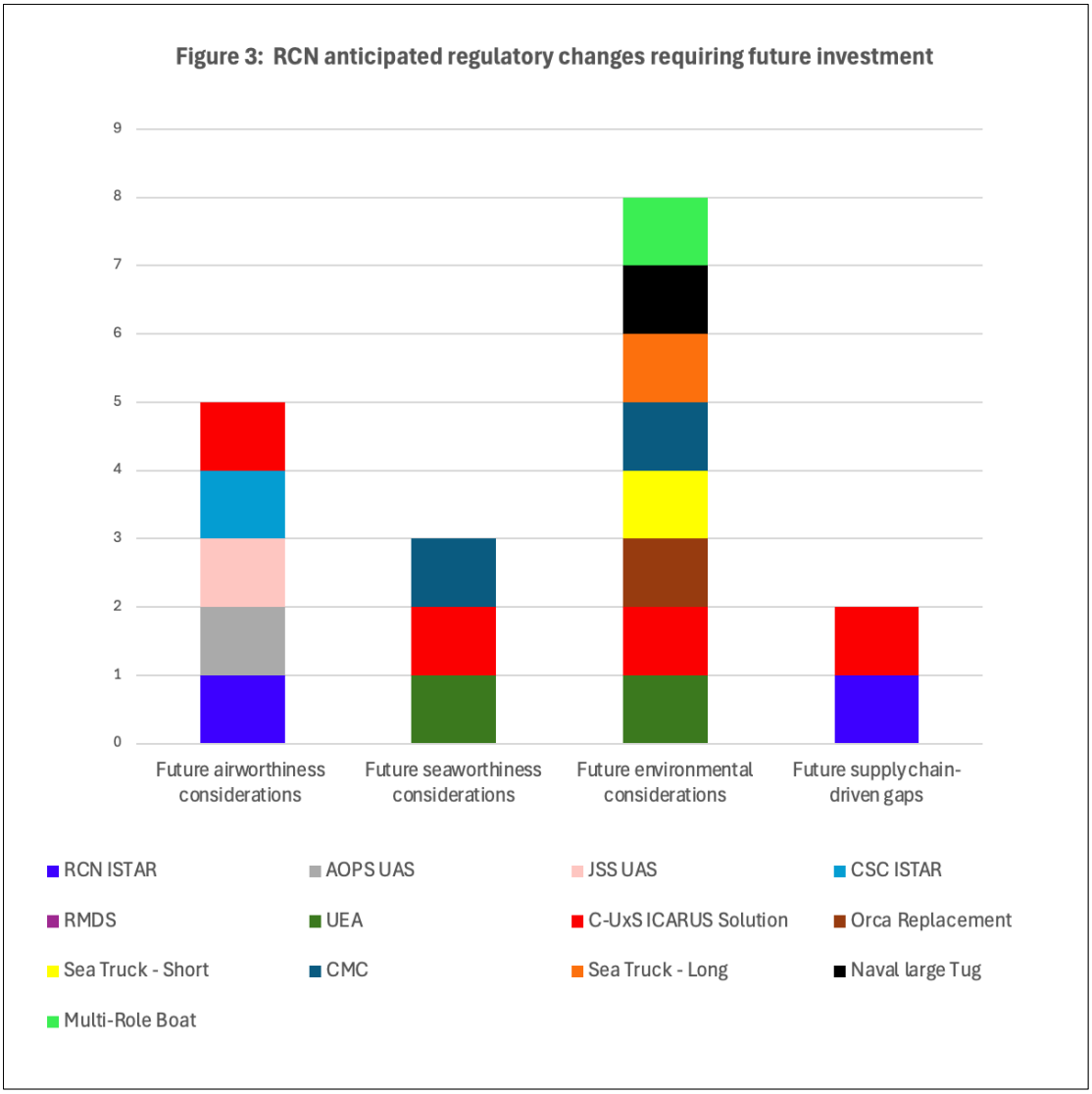


Figure 3 foregrounds the regulatory changes CCS category. Future seaworthiness considerations and supply chain-driven gaps are not prominent, suggesting that RCN CCS planning need not prioritize these factors. However, the RCN has the highest percentage of projects (62) among the services with future environmental considerations, suggesting that this evolving regulatory area could be an impactful early CCS focus. Marine pollution regulations, Arctic operations, the GoC Greening Strategy, and RCN fleet decarbonization are all future environmental considerations

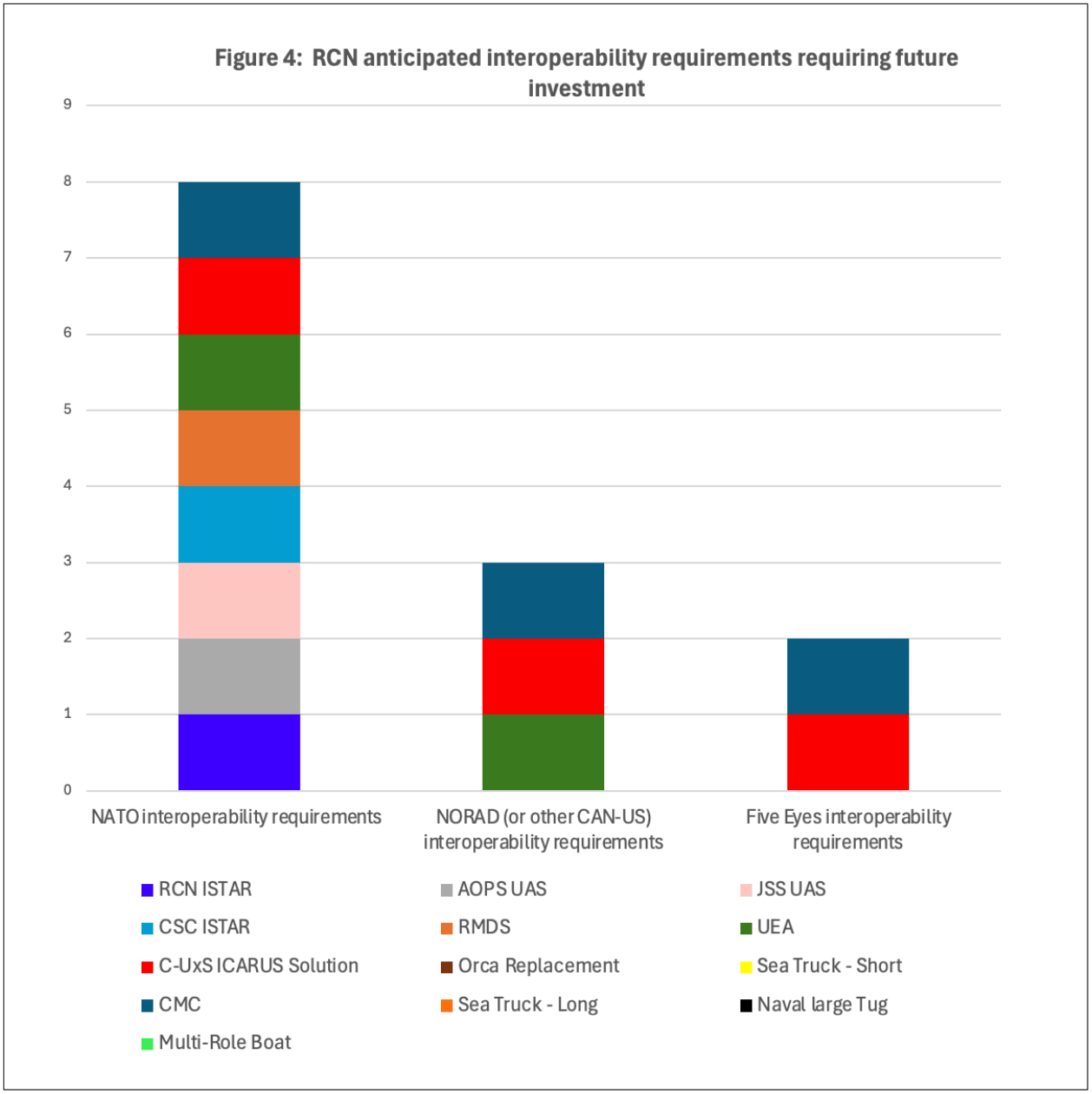


Figure 4 highlights interoperability requirements. NATO Standardization Agreements (STANAGs) are broader than RCN NORAD and Five Eyes interoperability requirements.[1] Similar to the Canadian Army, 62 percent of projects anticipate evolving STANAGs requiring future investment. STANAGs for uncrewed systems and data transmission continue to evolve.

[1] "Standardization," NATO, 2022, accessed July 14, 2024, https://www.nato.int/cps/en/natohq/topics_69269.htm.

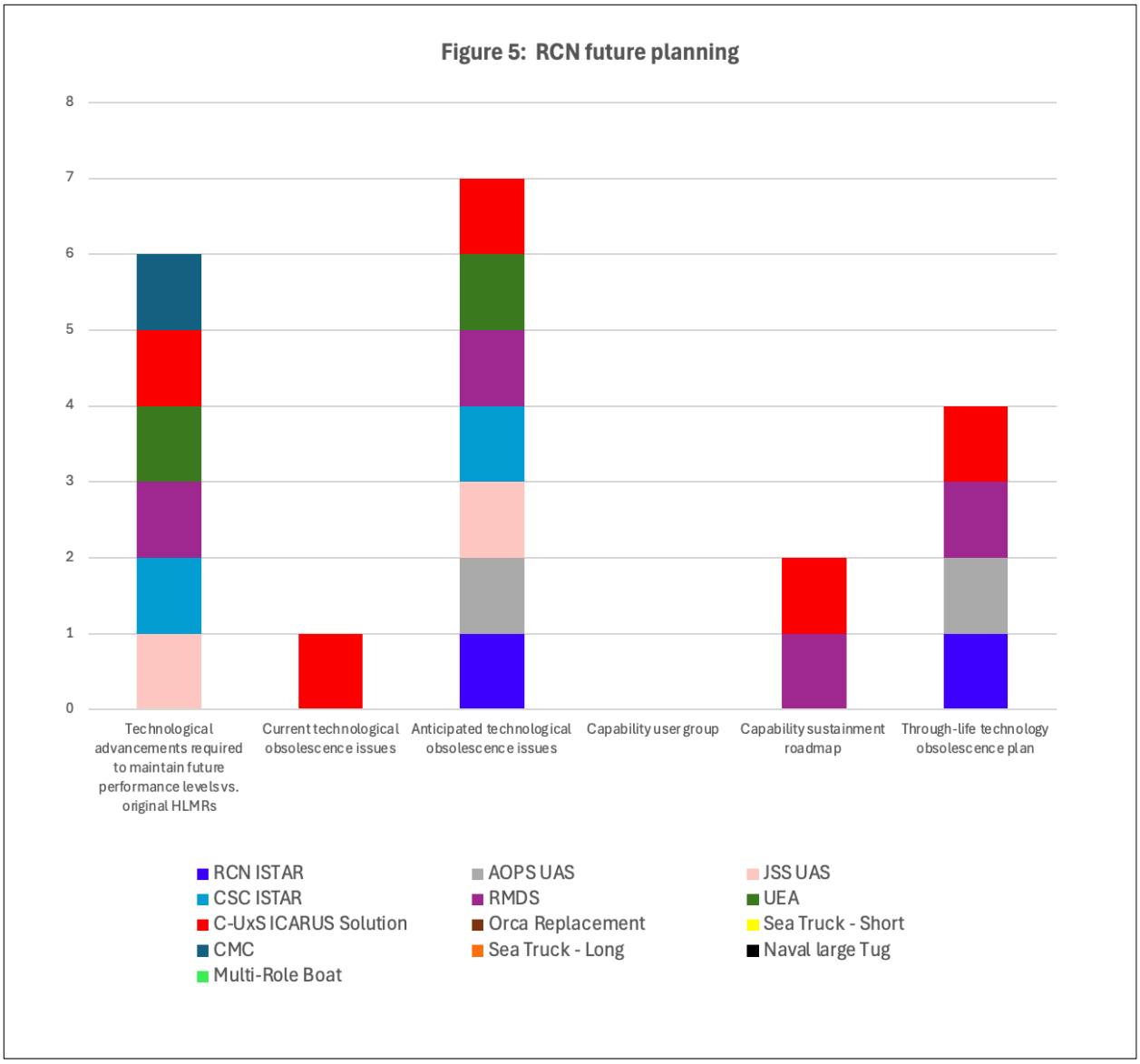


Figure 5 captures the future planning category of CCS indicators. The Canadian Multi-Mission Corvette (CMC) may have a capability user group, but the platform design has not yet been selected. Anticipated technological obsolescence issues and required technological advancements are both prominent, reaffirming the suitability of CCS technology insertion activities. Both indicators capture the swift pace of technological evolution. The predicted timeframes for technological obsolescence range from 2 to 15 years, with a mean of 9.3 years. CCS can also support capability sustainment roadmaps and technology obsolescence plans across the services.

Conclusions and recommendations:

1. Anticipated technological obsolescence issues (54 percent), evolving NATO interoperability requirements (62 percent), and future environmental considerations (62

percent) were the most prominent CCS indicators among the RCN projects captured in the dataset. Based on this observation, future RCN CCS planning and piloting efforts could be most effective and efficient if initially focused on these areas.

2. Effective and efficient through-life capability sustainment should be an active consideration throughout the Canadian defence procurement process.

3. In this era of rapid technological innovation, capability sustainment roadmaps and through-life technology obsolescence plans are critical to future force readiness and operational relevance. In keeping with the prior recommendation, consideration should be given to incorporating CCS into these plans so that in-service CAF capabilities can be regularly and rapidly refreshed (whenever feasible) rather than entirely replaced or comprehensively upgraded on an episodic basis under far more protracted and costly capital projects.

4. Given the number of CCS indicators visible and the potential efficiencies to be leveraged, the RCN should consider piloting CCS in the future C-UxS ICARUS Solution. Continued close engagement with allies in this dynamic capability area can also help the RCN to keep pace with the threat and efficiently maintain fully interoperable future forces.

5. Canada should continue to work closely with NATO allies on STANAG development in order to ensure that future CAF capabilities can be developed for maximum through-life interoperability and sustainment efficiency. The same consideration applies to engaging allies and partners on future environmental standards and regulations.

6. In some cases, respondents indicated that specific projects were not sufficiently mature to assess the presence of a CCS indicator, but those respondents posited that additional indicators could become visible as projects evolve.

7. Our sample of 13 RCN projects is not necessarily representative of all current RCN projects. Further CCS analysis can be undertaken with additional survey data.

About the Author

William "Will" Richardson *is a PhD candidate in Political Science at Carleton University. He specializes in International Relations and Public Policy. His Doctoral thesis will examine the intersection of Five Eyes military cooperation, emerging technologies and defence procurement. Will completed his MA at the Norman Paterson School of International Affairs at Carleton University in 2020. His MA thesis examined Canada's Future Fighter Capability Project and the role of interoperability in Canadian defence policy. Will also works as a Consultant at Space Strategies Consulting Limited, where he prepares research papers, concept papers and oral briefings on advanced aerospace concepts, military doctrine, emerging technologies and the commercial space sector for clients in the public and private sectors. Will has also worked as a political and security desk officer on several geographic desks at Global Affairs Canada, during which time he produced strategic advice, research reports, and briefing documents for use by the Prime Minister, Cabinet Ministers, and senior departmental officials. Will is passionate about history and aviation; and is also a keen cyclist and hiker.*

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