

Reflections on a Decade of the NSS

Ian Mack

This issue of *Canadian Naval Review* is dedicated to an examination of the National Shipbuilding Procurement Strategy/National Shipbuilding Strategy (NSS) as it enters its tenth year. It is a good opportunity to reflect on the program.

As a 'plank owner' in the NSS from the conception and approval phase (2008-2010) and having been continuously involved while working in the Department of National Defence (DND) until I retired in February 2017, I have observed and reflected on aspects of the fascinating journey of this national program. It has grown and changed, seen close to one naysayer for every supporter, and survived many challenges from government officials. To use a hackneyed metaphor, the baby delivered in 2010 has developed significantly, though still not jumping hurdles. I think it fair to say that the NSS shipyards still have a ways to go to be generally rated in the bottom of the top quartile of shipyards globally.

Having been privileged to have provided perspectives on this topic in other papers,¹ I will attempt to avoid things I have said already. And I will attempt to be an optimist, one who, as defined by Winston Churchill, 'sees the opportunity in every difficulty' – not my strong suit as those who know me would lament.

Conception Perspectives

Much has been written about the Joint Support Ship (JSS) procurement competition that was terminated in 2008. Having spent tens of millions of dollars to that point with little to show for it aside from the forensic conclusions, this was a significant event. With recapitalization of the Royal Canadian Navy's (RCN) fleet in the balance, it was assessed as important to adopt a novel approach.

I was consumed in the summer of 2008 with a number of major projects. First I was trying to determine options to re-launch a JSS acquisition initiative. Second, I was working on plotting a new course for the Canadian Surface Combatant (CSC) project after government decisions leading to the project's inclusion in the Canada First Defence Strategy (CFDS). Third, I was trying to move the Arctic Offshore Patrol Ship (AOPS) project – a government priority – 'with all due dispatch.' Finally, I had a number of other projects in my portfolio underway for ultimate delivery to the Canadian Army.

As I recall, I and Commodore Richard Greenwood (the Director-General Maritime Equipment Program Management) were summoned to the office of the Assistant Deputy Minister for Materiel (ADM (Mat)), Dan Ross,



Portrait photo of author.

who was our boss. We were informed that there was a degree of support for a new shipbuilding approach, raised for consideration by the Materiel Group Chief of Staff Dave Jacobson, whereby we would competitively select a shipyard to build RCN ships over the long term. I was tasked to analyse and develop a related proposal, with Richard's assistance in providing some human resources support and access to expertise.

What followed were two hectic years for me and a small group. In the group, four were drawn from available-in-Ottawa RCN technical officers (Commanders Joel Parent and Mike Turpin, and Lieutenant-Commanders Kit Hancock and Ro Gulati) and one representative, Ed Lam, was from Public Works and Government Services (PWGSC), the contracting department of government subsequently renamed Public Services and Procurement Canada (PSPC). I tapped Commodore Pat Finn – recently promoted and appointed to lead the CSC project – to be dedicated for about six months to getting the work up and running. Captain (Navy) Rick Houseman continued to lead the JSS project and temporarily covered off as Project Manager (PM) CSC as well. In early 2009 with the NSPS work well underway, Commodore Finn led both the CSC project and the NSPS office team.

The forensic analysis of the terminated JSS procurement process played a pivotal role in determining that the issue was the 'boom-and-bust' cycle of shipbuilding of Canada's fleets. In essence, the complex ship construction



A computer-generated image of the Crown jewel of the NSS, the Canadian Surface Combatant.

capabilities of the previous century had atrophied in the absence of government shipbuilding projects and the shipyards were instead largely focused on ship repair. Furthermore, and of equal importance, this had led to a notable detrimental impact on the broader Canadian marine industrial sector. Effectively, NSPS was seen as a way to address many of the issues at play in the problematic JSS procurement process and could deliver many important benefits – subjects well covered in my previous papers.

As you may recall, in 2008-2009, a global recession was underway, and that affected the government's willingness to commit financial resources. And, on top of that, in the late 1990s there had been a 23% reduction of personnel in government in order to address a chronic national deficit. The impact of these staff reductions was stark in terms of reduced capacity and capability. In the shipbuilding domain, a surplus of ships had dampened the global merchant business and closed yards. The steelwork for ship hulls was often contracted out to capable and less expensive shipyards in Europe or Asia. In Australia and the UK, ships were being built in multiple shipyards and assembled in one.² The acceptance and understanding of the complex domain of project management was just dawning. It was a new century full of opportunity and challenge.

Some day, hopefully, this chapter of the NSPS story will be detailed more fulsomely. Suffice to say that, in a nutshell, the NSPS office conducted analyses, recommended two

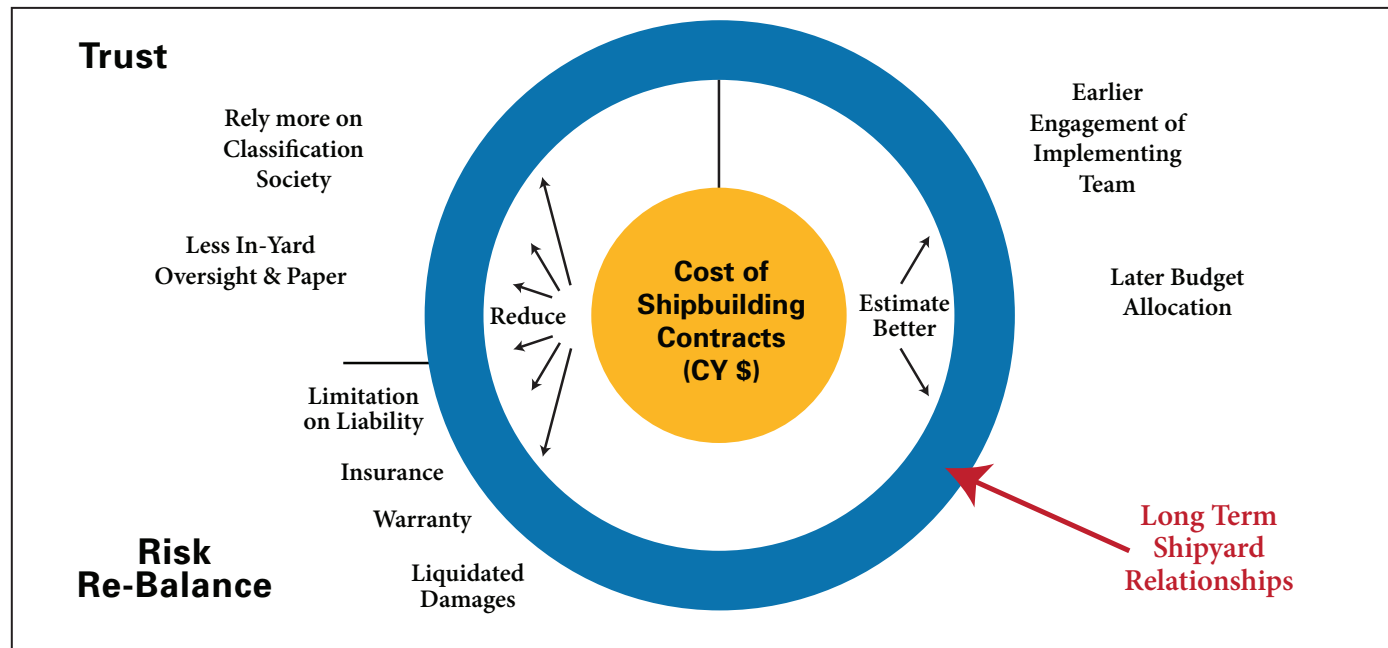
shipyards for selection, formed a broad government consultation group, engaged and brought the Canadian Coast Guard (CCG) onboard, found First Marine International (FMI) as a critical enabler to the subsequent competitive shipyard sourcing process, individually and collectively consulted with the Canadian marine industrial community (shipbuilding, ship design, manufacturers and support), briefed on the concept which in the final approval stages included staff members of multiple Ministers, and approached government more than once. Control was transferred to PWGSC in early 2010, with Tom Ring as the responsible Assistant Deputy Minister (ADM) and two new peers for me, Terry Williston for the procurement and Scott Leslie for almost a decade of implementation.

In the spring of 2010 at the CANSEC trade show, the announcement of the National Shipbuilding Procurement Strategy was made. And a competitive process got underway to select shipyards which would build RCN and CCG ships.

Delivery Perspectives

Having obtained approval for the competitive selection of two shipyards with which to develop long-term strategic relationships, PWGSC launched a qualification process under the steady hand of Terry Williston. Five shipyards qualified: Kiewit Offshore Services in Newfoundland; Irving Shipbuilding in Nova Scotia; Davie Yards (later a consortia for the bid) in Quebec; Seaway Marine and Industrial in Ontario; and Washington Group (later renamed Seaspan Marine) in British Columbia. Only three

Diagram 1: Basic Rationale for NSPS



Credit: Provided by author

actually submitted bids – Irving Shipbuilding, the Davie Yards consortia and Seaspan Marine.

As happens in Canada, all others in the marine sector were no longer involved or consulted once the competitive process was underway. An intense and expedited engagement process was launched with the five qualified yards. In hindsight, although the marine sector had been included in a large consultation event in the summer of 2009, its continued engagement could have been useful as the marine sector industries were very capable potential participants in the bid teams and as much a target for benefits and high-end jobs as the shipbuilders.

In essence, the shipyards could bid on either or both of two streams of work. The first was titled the Combat Package, potentially comprised of six AOPs and 15 CSCs to replace the Canadian Patrol Frigates then entering mid-life modernization. The AOPS build in effect allowed the selected yard to cut its teeth and achieve a predefined capability in preparation for the CSC. The Non-Combat Package potentially included three CCG Offshore Fisheries Science Vessels (OFSVs), one Offshore Oceanographic Science Vessel and one Polar Icebreaker, plus two JSS for the RCN. Of note, the JSS construction was added to the Non-Combat Package in an attempt to balance the scope of work. In effect the selected shipyards were competing to win exclusive sourcing rights for these shipbuilding projects if the government approved the shipbuilding projects identified – and it was implied that more vessels might be added later, especially for the CCG in the Non-Combat Package.

A novel governance model was set in place to oversee and guide all aspects of the procurement process, with essentially two tiers that included representatives of the

executing Departments (DND, PWGSC, Fisheries and Oceans in which CCG was nested, and Industry Canada) plus Treasury Board, Finance and the Privy Council. A shaping committee of Assistant Deputy Ministers (ADMs) was the first tier and reported to a decision-making council of Deputy Ministers. This governance structure was entirely focused on the NSPS and invested in achieving an open, fair, transparent and uncontested procurement.

Third parties were also involved in setting the process, including two of the four big consulting firms and FMI. FMI was unique as it was (and is) accepted globally as the expert in benchmarking shipyards against a broad set of best practices standards. FMI was employed in evaluating the existing capabilities of the five bidders and the gaps that needed to be filled to reach a set of standards at the bottom of the top quartile of shipyards in the world.

Through what I remember as five fulsome engagements with the prospective bidders, the approach and the draft Request for Proposals (RFP) were finalized. Concurrently, a comprehensive approach was put in place for the bid evaluation by adding a review board at the Director-General (DG) level to the traditional approach, to oversee the assessment activity and expeditiously address any issues that arose. As well, FMI was contracted to provide expert input on the shipyard facility upgrade proposals.

The scoring of the three bids was held in total secrecy. Only four people were aware of the winners up until about an hour before they were announced in a televised briefing in October 2011 – and that hour included making the Prime Minister aware of the winning yards. As we now know, Irving Shipbuilding Inc. (ISI) was awarded the Combat Package and Vancouver Shipyard (VSY) (Seaspan) the Non-Combat Package. The procurement process was in

the end uncontested despite its value then pegged at \$50B. The entire process had taken a mere 15 months, and the procurement team led by Tom Ring received many awards subsequently. Of equal importance, there appeared to be widespread and non-partisan support.

For good or for bad, baby NSPS entered the world as a national endeavour to introduce stability for decades to the building of Canada's fleets of ships. I say 'for good or for bad' because many government officials had never appreciated the problematic aspects of the NSPS. Ships would be built sequentially in each shipyard so there was no room for surge or concurrent construction of three classes of ships in the two NSPS shipyards under the government's Build in Canada policy. Shipyard facilities had to be renewed, hundreds of new workers hired, thousands of new processes created and tested, people trained, relationships established with new public and private sector organizations, and ships designed functionally, then in detail and then for production. And all this had to happen before the tedious and challenging production of first ships could start. In terms of the timelines, the government did not manage expectations as well as it could have, and announcements unintentionally misled the media and thus led the public to expect to see new ships in a couple of years. Shipyard workers were given to believe they would have continuous (not continual) employment for life. Hence in large part because of poor communication,

it is my view that NSPS was set up from birth to be perceived as a very expensive failure when compared to the expectations created.

That said, NSS has survived federal elections and a change of government. This is no small achievement for what I have often characterized as a very expensive and risky procurement plan that was initiated for the undervalued national defence program.

Perspectives of the Early Years

Much like a baby must learn to crawl and progress into the toddler stage, so too with NSPS. The first stage was the development of Umbrella Agreements (UAs) with each shipyard, an activity which took three months. Both bidders had committed to completing the recapitalization of the shipyards to meet FMI standards (known as Target State) at their own expense. That the bidders proposed to pay for capital upgrades at no cost to Canada was a response that officials had not expected. This meant that hundreds of millions of dollars would be spent by the shipyards with no guarantee of work, so the shipyards wanted what was soon described as a 'backstop' agreement. The cost of designing and constructing the new facilities was seen by the yards as a potential debt for Canada if no contract work was ever awarded. Hence an agreement was signed with both yards which included retirement of such a debt as contract work was awarded, and before an agreed date after which Canada would also pay an interest charge.



Credit: Seaspan

The 130 metre long Forming Shop is one of the legacy buildings at Seaspan Vancouver Shipyards predating the NSS modernization. Nonetheless, it is home to some of the yard's most advanced equipment, such as this 1000t hydraulic plate press that can bend 2.5"-thick steel plates.

Needless to say, this one aspect in particular required significant negotiations and then approval by the Treasury Board. The signing of these UAs in early February 2012 signaled the real start date of the NSPS.

The early days demonstrated the differing cultures in play. In Halifax, DND focused on turning over the early design work on AOPS to the shipyard. They were met by a full senior team at ISI and progress was positive from day one. In Vancouver, the two clients (DND and CCG) both pressed for progress with their own shipbuilding projects that had been stalled awaiting the NSPS process to be complete. The Seaspan senior leadership team was somewhat confused and overwhelmed by the cacophony of government voices competing for attention, and the newly named shipyard President (Brian Carter) was only then starting to hire his leadership team.

As mentioned earlier, the tasks facing the shipyards were daunting. In Halifax, ISI also had to complete an earlier contracted shipbuilding project (the *Hero*-class) for CCG but this did not deter the Irving team – that baby rolled onto its tummy on day one and struggled to crawl soon after. The Vancouver scenario was different as it was much more of a greenfield site challenge; the initial focus was hiring people with the knowledge and ability to build the facilities and to start to address the design aspects of Canada's priority projects.

These were exciting but difficult times. Both shipyards were advised about where the facility designs submitted in their bids were seen to be at risk of failing to close the gaps identified by FMI. This led to more extensive (and expensive) modified yard proposals for review by FMI on behalf of Canada, and consideration of amendments to the backstop agreements as their exposure increased. Only then could detailed facility designs be prepared to

enable construction. Design teams had to be put under contract by the shipyards before they could take possession of Canada's ship design packages and only then could they review them before taking responsibility for performance. And everyone wanted to be 'production design ready' for the first ship construction as soon as possible once the facilities were commissioned.

Meanwhile government officials were also in team-building mode. Scott Leslie and I felt we were perpetually traveling to the coasts. Project offices needed to adjust to their new Prime Contractors, quickly adopting the shipyards' recommendation to employ a design-then-build two-contract strategy rather than the intended single design-and-build contract approach. PWGSC contracting teams needed to grow as contract negotiations were launched with shipyards keen to start to see revenue. The competing desires of DND and CCG to build JSS and the Polar icebreaker in the same time slot required many months of work by officials before the NSPS governance team could render a decision.

Contract approaches to fit the different clients and shipyards were quite different. In Halifax, the design contract included many individual tasks with cost targets for each based on 'indicative' cost estimates (based on less detailed planning) and two levels of contingency. This was a novel approach for the Treasury Board which usually only approved 'substantive' budgets (usually with much higher degrees of accuracy). In Vancouver, substantive estimates for design were generated which were to prove problematic. The ISI design contract structure was but one successful innovation in the NSPS process.

Ship construction contracts were traditional for both the OFSVs and AOPS, the first ships in the schedule. As expected, the challenges on both coasts of new plants,



The two original NSS shipyards as they appeared right after their modernizations: Seaspan Vancouver on the left, Irving Shipbuilding on the right.

Credit: Heath Moffatt
via Seaspan Vancouver;
Irving Shipbuilding



Credit: Vard Marine

Despite the large amount of engineering work that had already gone into the future **John G. Diefenbaker** Polar icebreaker, it was beaten out by the Joint Support Ships in the build queue at Seaspan Vancouver. The fate of the Polar icebreaker is now up in the air as the government awaits responses from Canadian shipyards as to their ability to build it before 2029.

people, processes and relationships significantly affected production performance with the first ships of class in terms of budgets and schedules. Of note, such scenarios are very common for experienced shipbuilders throughout the world.

But having learned the basics in the first ships, the NSS baby (the project name had been changed to drop the word ‘procurement’) advanced from crawling to walking. Without doubt, the toddler had a few face plants along the way which differed between the yards but collectively included overly optimistic production norm guesstimates, subcontractor relationship and delivery issues, hiring misfires, quality shortfalls and the like. Along with changes needed to harmonize the construction of the last ship of a class with the subsequent first of a follow-on class, contract amendments were inevitable. Given the constant pressure created by the urgent need to deliver ships, missteps were likely – if you want it fast, you usually make mistakes.

Today two OFSVs have been delivered to the coast guard (CCGS *Sir John Franklin* and CCGS *Captain Jacques Cartier*) and the first AOPS (the future HMCS *Harry DeWolf*) is completing trials before turnover to the RCN. To return to our analogy, one could say that the NSS shipyard youngsters are now walking with a degree of confidence but no swagger just yet.

Perspectives on the Future

I have no crystal ball and I have been out of the business for three years. Nevertheless I believe that the NSS youngster is poised to start to run. Much larger JSS hulls in the West and an exceptionally complex CSC ship design in the East are next up. The shipyards have moved well up the shipbuilding learning curve and made adjustments along the way, some of which have been dramatic. And a third NSS shipyard is now poised to emerge (Davie

Shipbuilding), suggesting a degree of confidence in key elements of the NSS DNA.

Considering our analogy one more time, one might conclude that the NSS youngster that once belonged to a troubled family in a tough neighbourhood has broken free. There will be significant challenges ahead that will undoubtedly cause stumbles and falls – COVID-19 being the latest delaying factor. But Canada did what was considered impossible by re-creating the shipbuilding industry in Canada. And there remain many opportunities to make the NSS even better.

As the saying goes, it takes a village to raise a child – and, I would add, some luck. Just as I was privileged to work with many dedicated people over the past decade, there are many more now toiling in that village. It is up to them and the extended NSS family to improve the odds of continued maturing through innovation and perseverance.

In addition to providing ships to the RCN and CCG, the NSPS was developed to create opportunities to address Canada’s atrophied shipbuilding industry and pump life and jobs into Canada’s marine industrial base. It is time to plan the next set of goals, and support the NSS youngster we have created. 🍷

Notes

1. I have written a number of papers relating to NSPS/NSS that have been published on the Canadian Global Affairs Institute (CGAI) website. See for example, “Another Way to Buy Frigates,” November 2019; “A Third NSS Shipyard,” October 2019; “Emerging Lessons from the National Shipbuilding Procurement Strategy,” March 2019.
2. In the United Kingdom, the Terms of Business Agreement was in place and worthy of study as another example of the desire to adopt longer term and stronger relationships between government and the shipbuilders that permeated the European shipbuilding community.

Ian Mack is now a retired public servant who as a Director-General held tenure in the Department of National Defence in the period 2007-2017 with portfolio responsibility for NSPS/NSS and over seven major capability projects destined for the RCN and Canadian Army.