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Hard Things Are Hard: Lessons for Complex Procurement Projects

by Ian Mack

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POLICY PERSPECTIVE

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Lost ground can always be regained, lost time never – Franklin D. Roosevelt

A recent book by Bent Flyvbjerg and Dan Gardner[1] reveals the following sobering statistics regarding complex infrastructure projects: Only 47.9 per cent of such projects were delivered on budget, 8.5 per cent were delivered on budget and on time, and a mere 0.5 per cent of projects were delivered on budget, on time and with the intended benefits. The challenges that plague complex infrastructure projects are similar to those that hinder defence procurement.

Canada's 2017 Defence Review noted that complex military acquisition projects suffered from a number of challenges, including that "70 percent of all projects have not been delivered on time."[2] Other nations are also focused on accelerating major defence project deliveries. Australia's recently released Defence Strategic Review states that "projects of high strategic importance … must be given special consideration for accelerated acquisition and delivery."[3] The U.K.'s House of Commons Defence Committee has raised similar concerns: "We also need a system which places greater value on time, (and) promotes a sense of urgency rather than institutional lethargy."[4]

Troy Crosby, assistant deputy minister of the Materiel Group in National Defence Headquarters, in April 2023, said in an interview that if he were writing to Santa about industry, he would like to see "a shift in the balance away from business development … to provide the products you claimed you would be capable of delivering in the contracts you signed … and provide the equipment on time as specified in those contracts."[5] Understandably, as military procurement is a commercial business endeavour with international supply chains involved, it is subject to the global pressures of businesses. A recent report by the World Economic Forum (WEF) characterized today's business environment as one of "polycrises," laying out the compounding impacts of over 30 interdependent global crises.[6]

Clearly, the pervasiveness of undesirable delays in defence procurement in comparable jurisdictions puts Canada's challenges into context. Timely defence procurement of complex weapon system platforms is hard, as per a sign on former U.S. president Barack Obama's desk: "Hard things are hard."

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[1] Bent Flyvbjerg and Dan Gardner, *How Big Things Get Done: The Surprising Factors That Determine the Fate of Every Project, from Home Renovations to Space Exploration and Everything*, (New York: Penguin Random House, 2023).
[2] Department of National Defence, *Strong, Secure, Engaged*, Ottawa, 2017, https://www.canada.ca/en/department-national-defence/corporate/policies-standards/canada-defence-policy.html.
[3] Minister of Defence, Commonwealth of Australia, "Defence Strategic Review," (Canberra, AU: 2023): 92, https://www.defence.gov.au/about/reviews-inquiries/defence-strategic-review#:~:text=National%20Defence%3A%20Defence%20Strategic%20Review%202023,-Home&text=The%20Review%20includes%20specific%20directions,long%2Dterm%20and%20sustainable%20implementation.
[4] U.K. House of Commons Defence Committee, "It is Broke — And It's Time to Fix It: The UK's Defence Procurement System," (London, UK: 2023), https://committees.parliament.uk/publications/40911/documents/199247/default/.
[5] David Pugliesi, "Time To Make Defence Firms Pay for Their Failure to Deliver Equipment," *Ottawa Citizen*, May 30, 2023, https://ottawacitizen.com/news/national/defence-watch/analysis-time-to-make-defence-firms-pay-for-their-failures-to-deliver-equipment.
[6] World Economic Forum, "The Global Risks Report 2023: Today's Crises, Tomorrow's Catastrophes," January 11, 2023, https://www.weforum.org/publications/global-risks-report-2023/in-full/1-global-risks-2023-today-s-crisis/.

Common Complex Project Delivery Challenges

Complex projects usually share similar traits. They involve large numbers of stakeholders who change over time, interact to influence each other's perspectives and project culture and suffer from common characteristics such as unconscious biases. These projects involve novel and evolving technologies. They are very expensive. They take years from conception to delivery and they are composed of many networks of interdependent activities.

As a result, the life cycle of complex projects is marked by uncertainty as these complex factors interact and create unpredictable risks. Each risk is likely to introduce schedule slippage until a solution is developed and approved and the overall effect is slippage in project delivery schedules.

Complex Aspects of Weapon System Platform Acquisition Projects

In a decade of experience with weapon system platform projects ending in 2017, I witnessed the aspects common to complex projects in various ways. Noteworthy were the years of schedule slippage in all three of the shipbuilding projects for the Royal Canadian Navy (RCN) under the National Shipbuilding Strategy (NSS), and in two vehicle projects for the Canadian Army.

Military acquisition projects unfold in two phases. The federal government leads project definition, which involves many departments and agencies. The private sector leads project implementation but with close oversight by government project staff.

Adding to the complexity, Canada's default procurement strategy is at the far end of the range of competitive processes: open, competitive bidding. While the advanced contract award notice (ACAN) is defined as a competitive process, it is more attuned to a sole-source approach but rarely used. True sole-sourcing is even less common.

My experience led me to four conclusions. First, the important activity that really counted in planning and managing projects was done in industry during implementation, although there were often interventions during plan execution due to scrutiny by government staff. Such interventions often required lengthy analysis and therefore decision-making delays. Second, government decisions during project definition shaped the implementation phase of weapon system platforms. Third, both government and industry leaders had to be involved in understanding and navigating project challenges so they could work together to deliver the target product.

My final conclusion is more provocative: Except when acquiring weapon systems as sole-source procurements and/or as military off-the-shelf products, project delivery was always later than forecast. Therefore, the best we could do was either buy off the shelf, or otherwise work to reduce the degree of delay.

What follows are a sample of the unpredictable delays that occurred in the projects I was involved in.

During Project Definition

In this phase (and consistent with the federal government's peculiar approach to competitive procurement then and as it remains today), government departments established project requirements, engaged industry, estimated costs partly based on schedules defined by client need, generated competitive requests for proposals (RFPs), evaluated bidders' responses, obtained approvals to enter project implementation and awarded an initial contract.

Regrettably, Hofstadter's law (things take longer than expected) and optimism bias (the assumption that negative events are unlikely to occur) played major roles in schedule slippage during this phase. Projects were often doomed to be late to client need before project definition was even complete.

In the Department of National Defence (DND), civilian capacity and experience issues were the lingering effects of the 50 per cent personnel reductions to the Materiel Group of the '90s. In Canada, uniformed personnel routinely played the dominant role in producing detailed requirements documentation. Most military members assigned to defining requirements had never worked in Ottawa before and had little to no commercial knowledge of the market and contenders. Most officials involved in setting requirements lacked the experience needed to devise achievable requirements from scratch. Often, this resulted in RFPs based on statements of requirements (SOR) with so many very detailed mandatory requirements that bidders could not pursue creative trade-offs to minimize schedule risks. External reviews of SORs and RFPs were rarely in evidence. Issues were often only uncovered during project implementation. When prospective bidders lobbied senior government officials and ministers about their concerns, projects were further delayed, in some instances for years.

The intent of industry engagement was to provide insights. However, because companies protected their competitive advantage, officials were regularly skeptical of input received to the point of disregarding much of what they heard in all but the industrial and technical benefits (ITBs) area.

The number and range of government departments further complicated and slowed decisions. Most officials involved in advancing projects towards implementation did not know their colleagues, so time was often lost in developing understanding as a foundation for effective communications and collaboration. To minimize risk, RFPs were designed to lock down every possible risk to the government. Hence RFPs left little room for successful bidders to introduce creative ways to efficiently deliver an acceptable product.

Before project definition even began, decision-makers needed single-point forecasts of the project cost, an assessment of the level of project risk and the schedule for delivery. These were then set in stone as the criteria for defining success, even though no implementer was yet on board, the design either did not exist or was incomplete and no detailed implementation/construction planning had been done.

Once a successful bidder was selected and approved by Treasury Board, other government priorities delayed announcement of the prime contractor, sometimes for months. And on more than one of the projects I was involved with, unsuccessful bidders lodged complaints or lawsuits that detracted from government attention and further slowed the initiation of project implementation.

The overall result was that, despite everyone's best efforts, competitive processes to procure weapon system platforms took years to decades to achieve initial contract award – and that was after launching projects too late to navigate the project definition processes to enable timely completion of project implementation. In recent decades, this was the fate of Canada's efforts to procure new fighter jets, new search-and-rescue helicopters, new support ships and new surface combatant warships. And at contract award, many contractual commitments and processes were cemented in place as time-consuming constraints on the prime contractor and its supply chain.

During Implementation

With selection of a preferred bidder achieved, there was still work to be done before project implementation could start in earnest: final contract negotiations, hiring and training a full implementation team by the prime contractor, negotiating subcontracts and the development of working relationships among the parties.

The prime contractor and the assembled consortiums then started planning the early stages of implementation. In time, this led to the multi-stage design and integration work needed to incorporate Canada's modifications into the military off-the-shelf (MOTS) platform proposed – all while considering ease of construction and access to the systems' supply chains. Where design changes were major, a trial-and-error design spiral was required to converge on a viable solution. I remain convinced that forecasting the schedule to deliver a completed design was and remains particularly challenging – some would call it engaging in fantasy.

As production got underway, a myriad of delaying issues emerged in several of my projects: supplier replacement for unsatisfactory performance, security-compromising issues, transportation mishaps, workforce events with the prime or subcontractors (e.g., key personnel turnover, union strikes and illness due to simple viruses like flu), design errors, quality assurance failures and such truly black-swan events as plant damage from an extreme climate event (a tsunami). Production engineering, which establishes the thousands of construction tasks required, also led to redesign delays as issues emerged. Also, government oversight and contractually specified mandatory approvals introduced further delays, frequently awaiting complex decision-making by senior levels of project governance.

Unit testing was eventually conducted, rarely with flawless results and often causing more schedule slippage. Other common challenges included the timely completion of the logistics support analysis/sparing documentation and the training materials/systems for CAF operators and maintainers. Only then was a platform commissioned and delivered.

Broader Realities

Complex procurements involve hundreds of judgment calls and assumptions. Winning proposals are only as good as the RFPs they answer, the bidders' abilities, the time and budget available to generate proposals and the bidders' chosen commercial strategies. Other disruptions include unexpected political influence, the maneuvering of individuals and companies to preserve reputations and deteriorating relationships of senior players within the project enterprise. When there are prolonged delays in obtaining government approvals between design phases, engineering subcontractors cannot pay their teams, risking on-board expertise that may have to be replaced and brought up to speed if top-tier personnel jump to other employers. Many of these issues introduce budget pressures, Treasury Board's rules then requiring a re-baseline of budgets (in shipbuilding, an onerous task that can take many weeks of effort) and additional funding approval.

Therefore, no one should be surprised that Canadian weapon system platform projects deliver later than was contracted, just as do those of our allies. These delays increase project cost, destroy government credibility, damage Canada's operational capabilities and harm project staff morale.

What should be done then? One response I see with many is reminiscent of the famous quote from the movie *Network* in the 1970s: "I am mad as hell and I am not going to take it anymore!"[7] Alternatively, and to counter the trends of downplaying actual costs or an optimism bias that produces delays and less capability at delivery, Philippe Lagassé concluded in a recent publication that "this optimism bias should be replaced with a pessimism bias."[8]

Fortunately, there are opportunities to reduce the degree of delay in the delivery of weapon system platform projects. Some of these opportunities can be illustrated with examples from Canada's National Shipbuilding Strategy (NSS).

Opportunities

The past decade has witnessed a plethora of proposed new approaches to navigating complex projects. Such practices include the following:

- Embracing different mindsets;
- Employing advanced risk treatment by specialized professionals using emerging approaches;

[7] Anchorman Howard Beale's statement in the movie *Network*, 1976.
[8] Philippe Lagassé, "Defence Policy and Procurement Costs: The Case for Pessimism Bias." Excerpt from *Canadian Defence Policy in Theory and Practice*, vol. 2, Thomas Juneau and Philippe Lagassé, eds., 133–150, (New York: Palgrave Macmillan, 2023). DOI: 10.1007/978-3-031-37542-2 8.

- Creating organizational support ecosystems to enable continuous improvement in executing complex projects;
- Tailoring governance for each complex project being pursued;
- Embracing structured collaboration across the entire complex project enterprise;
- Investing in high-end approaches to professional development and HR interventions;
- Executing proactive management of stakeholders;
- Insisting on mandatory onboarding of those involved at every level to maintain continuity for improved decision-making; and
- Defining complex project success to include a broad range of enabling effectiveness measures beyond what researcher Mogens Frank Mikkelsen has described as the two efficiency measures of project schedule and project cost.[9]

These techniques have yet to gain broad acceptance. They are expensive to apply and cannot guarantee that complex projects will satisfy initial expectations for timely delivery. But such methodologies are achieving a degree of positive results by reducing the harm done to successful project delivery, thereby achieving a clear return on investment for projects costing $1 billion or more.

Ongoing research continues to identify new opportunities. As mentioned earlier, Flyvbjerg and Gardner rely on evidence from more than 2,000 projects to arrive at a series of refreshing recommendations.[10] I have recast the major messages in the book into three narratives (one for each of the book's three key principles) and incorporated a number of the authors' insights.

Hire a Master Builder

Strong leadership is critical in complex endeavours. Capable leaders are essential in government and in industry today. Such leaders should have relevant domain-specific technical knowledge and tacit social knowledge derived from their lived experience of leading, planning, constructing and successfully delivering similar complex weapon system platforms (more than one).

Tacit knowledge includes the capability to navigate the political machinations such projects exhibit (both the large "P" and small "p"). This includes such things as:

- Insisting that engineering trade-offs and performance-based statements of requirements be employed early on;

[9] Mogens Frank Mikkelsen, "Projects, Success and Complexity," University of Copenhagen, IPMA Research Conference 2017, Republic of Korea (November 2-4), May 8, 2018, DOI: 10.5130/pmrp.ipmarc2017.5618.
[10] Flyvbjerg and Gardner, *How Big Things Get Done* …

- Ensuring that contracts maximize positive incentives and flexibility to enable joint collaboration;
- Embracing shared risks and rewards between clients and suppliers;
- Focusing on making available the resources needed across the project enterprise;
- Creating and maintaining constructive relationships with influential stakeholders who remain eager to resolve project crises; and
- Being comfortable saying "no" or walking away from project involvement when the related red lines are crossed.

These leaders understand the common biases that so often damage such projects, in themselves and in others – such things as optimism, uniqueness and over-confidence bias, which Flyvbjerg includes in his assessment of the 10 most common such predilections in projects.[11]

The International Centre for Complex Project Management (ICCPM) recently provided an exhaustive rewrite of the competencies required to lead complex projects, which nicely complements Flyvbjerg's work.[12]

Hire the Right Team Early

The core team for project execution should include what approaches a master-class level in its respective areas of execution. In a perfect world, the master builder will either come with its own teams or attract new hires of experienced team members with the right stuff. Such skills are well articulated in the leadership competency standards mentioned above which the senior project team members need to support. Aside from professional skills in their areas of project responsibility, the right stuff includes such competencies as systems thinking and collaboration, supported by bounce-back resilience and a curious and open mindset.

Clients need people who can launch a project as smart customers. They are capable of guiding the many stakeholders to shape a RFP that then selects a master builder and team to implement the project. This takes experience not unlike that of the master builder, with a combination of relevant knowledge informed by a vast and crafted network of contacts in the related project's industrial sector. Once in implementation, the approach to oversight is based on knowing what essential performance monitoring is needed and how to work collaboratively to maintain ground truth for the key decision-making insights needed. And as issues arise, the team's worldview embraces a shared risk response.

[11] Bent Flyvbjerg, "Top Ten Behavioral Biases in Project Management: An Overview," *Project Management Journal* 52(6), December 2021: 531–546, DOI.org/10.1177/87569728211049046.
[12] Department of Defence, Commonwealth of Australia, "Complex Project Leadership Competency Standards – Building Capability in Complex Project Leadership," ICCPM, 2023, https://iccpm.com/resource-centre/complex-project-leadership-competency-standards-2023/.

Within both the client's and supplier's teams are deputies of various sections who exhibit most of the attributes mentioned for the master builder-like leaders, likely garnered by doing a similar leadership job at least once previously in a complex project.

Start Slow, Act Fast

Planning costs time and money but is routinely viewed as producing no tangible progress in executing the project. As the months roll by, pressure mounts to truncate detailed planning analysis and exploration of multiple options before finalizing the plan. Without thorough evaluation of different approaches and verification with the construction team, production otherwise starts and soon runs into trouble because issues arise which were not scenario-tested and addressed in planning. The schedule then slips by a few months at a time, such that stakeholders can turn negative, bankers can become skeptical, time-limited assumptions can become OBE and crises become possible.

Flyvbjerg emphasizes the importance of starting slow with comprehensive planning. This must include plan detours based on scenarios, past solutions and sheer creativity. One example was described in which a client contracted a company to build a high-rise office tower. In the detailed planning, efforts were expended to look at various ways to facilitate the construction and keep costs down. The maximum use of standard floor plans was adopted, as was prefabrication in multiple locations wherever possible. By working with the execution team, problems were identified and workaround solutions inserted. Construction was then delayed until all the permits and construction preparations were in place, including consultation with citizens in the construction locale, the workforce trained, prototypes constructed and warehouses and transportation contracted.

The book makes the point that with a rigorously developed plan, construction is able to move quickly to reduce the time the project's window of greatest vulnerability is open for potential black-swan-like risks to emerge. The idea is that the more issue scenarios have been considered during planning, the less likely will be delays during construction.

Flyvbjerg also tackles the thorny challenge of forecasting project cost and schedule as the client launches the project, in a way that does not immediately set complex projects up for failure. He describes the technique as the "anchor and adjust" methodology by employing "representative classes" of similar projects. The statistically significant similar project set provides cost and schedule anchors. One can then adjust these anchors for significant differences to achieve relatively effective infrastructure project forecasts, drawn from the representative class which includes their own emerging risks and crises in their anchors. Such stronger initial estimates can then be updated if and as necessary during implementation.

Such comprehensive plans include tailoring processes as well. Two examples are structured collaboration and risk treatment vigilance. Operationally effective and foundational collaboration best ensures that influential client stakeholders and project execution teams remain aligned as tough issues emerge and people turn over. Risk treatment avoids the dangerous complacency of

risk registers by emphasizing enterprise-wide vigilance to the initial weak signals of significant emerging risks, with urgent mitigation and consequential project replanning in response.

The culture of those engaged in the project enterprise is one more part of an effective plan to navigate complex projects. An overwhelmingly powerful dedication to mission first and/or collective resilience can allow speedy recovery from setbacks and minimal delays.

National Shipbuilding Strategy: Thoughts for RCN Ships

One of the major concerns with the NSS has been the delays in ship delivery against initial forecasts. The Office of the Auditor-General of Canada's 2021 report was clear: "The NSS was slow to deliver the combat and non-combat ships that Canada needs to meet its domestic and international obligations. The delivery of many ships was significantly delayed, and further delays could result in several vessels being retired before new vessels are operational."[13]

In Vancouver, delays in the delivery of OFSV as the virtual greenfield shipyard matured created a knock-on delaying effect on all of the follow-on ships to the Offshore Fisheries Science Vessels which were their first delivery. The Joint Support Ships (JSS), the Polar Icebreaker and the Offshore Oceanographic Science Vessel (OOSV) are all years later than forecast. In Halifax, the AOPS drumbeat was slower to mature than initially expected, although that pace appears to have accelerated after the first-of-class delivery of the HMCS Harry DeWolf as the traditional ship-construction learning curve bore fruit. As for the CSC, both the project's definition phase and completion of the ship's design have taken longer than expected. The best-guess forecast of first-of-class delivery (now in the early 2030s) is already late to need. The CSC will replace the Canadian patrol frigates that are now approaching (if not at) their estimated life expectancy (ELE) and clearly showing their age.[14]

Also, in the early days of the shipbuilding projects under NSS, the lack of leaders in government with lived shipbuilding experience had a detrimental impact. Likewise, the availability of shipbuilders in Canada and internationally in large and complex vessels was a challenge. Nevertheless, one hopes that all parties have gained significant experience and relationships have matured to the point where some emerging approaches to building Canada's future naval and coast guard fleets can be pursued.

Continuous Capability Sustainment (CCS)

At this time, government procurement authorities are considering a proposal that would allow weapon systems to be continually upgraded while in service. This would address technology inserts required to counter evolving threats and obsolescence issues on an ongoing basis. While

[13] Auditor General of Canada, "2021 Reports of the Auditor General of Canada to the Parliament of Canada, Report 2—National Shipbuilding Strategy, Article 2.14," Reference/Endnote, https://www.oag-bvg.gc.ca/internet/English/parl_oag_202102_02_e_43748.html.
[14] Terri Pavelic, "Maintaining a Navy – An Interview with Director General Maritime Programme Management, Department of National Defence, Commodore Keith Coffen," Blog post, Vanguard, November 10, 2023, https://vanguardcanada.com/maintaining-a-navy-an-interview-with-director-general-maritime-programme-management-department-of-national-defence-cmdre-keith-coffen/.

the funding and programmatic details have yet to be developed fully, the concept could support the timely shipbuilding of the next class or replacement vessels. If standing mini-project offices were put in place to include an operations requirements manager for each of AOPS, JSS and CSC, and shipyards supported such offices under contract, a modified heuristic of "go slow but be on time" planning could continually assess emerging options for next-generation replacement vessels. By working with the shipyards and their contracted design companies, CCS could better ensure that planning would not be late to need or rushed in the future, within government and by the implementing shipyard. It could also contribute to the creation of skills akin to a master class within DND, PSPC and ISEDC, and produce better informed budget estimates and schedule forecasts.

Master Builders

The NSS shipyards should now be able to attract and hire such leaders if the right incentives are on offer to achieve more timely delivery of future ships. To be blunt, paying such shipbuilders whatever is needed to work for the NSS shipyards will be repaid in spades in outcomes.

However, ships are much more complex artifacts than many infrastructure projects. As a result, many masters are required beyond the shipyard; for example, to deal with modern combat and marine systems integration.

Planning and Experimentation

Around the world, shipbuilders have been experimenting in their planning since 2000 so as to speed up execution and save on costs. Some examples follow:

- With the digital design programs now available, the employment of multiple shipyards or fabricators to construct modules employing 3D design digital drawings has been used and can save time. Davies' recent purchase of a Helsinki shipyard with significant experience in delivering icebreakers could offer speed in delivering their first class of ships under NSS;[15]

- In other instances, entire hulls with minimal outfitting have been built in one shipyard and transported to a final shipyard for comprehensive outfitting as that shipyard became available;

- In the U.S. on at least one occasion, more complex compartments (e.g., operations and machinery control rooms) have been fully constructed, tested and electronic equipment groomed offsite, to then be transported to the shipyard and welded into position, with connection to electricity, coolant water and HVAC;

[15] Maiya Keidan, "Canada's Davie Completes Purchase of Helsinki Shipyard from Russia's Algador," Reuters, November 3, 2023, https://www.reuters.com/markets/deals/canadas-davie-completes-purchase-helsinki-shipyard-russias-algador-2023-11-03/.

- Standard crew cabin designs have been used, an approach likely already in use in some vessels being built under NSS. Can more standard compartment modules be adopted, perhaps across multiple ship designs?

- As production design work progresses and before updated cost and schedule estimates are generated, blue collar construction teams have done a form of dress rehearsal trials to provide useful feedback on both the viability of the task plans and ways to improve quality and speed. The General Dynamics NASSCO shipyard in San Diego used this when developing bid cost estimates in the past;

- Designers have used prioritized requirements documents, complete with both "fit for but not with" and requirement jettison lists, to satisfy project schedule and cost targets; and

- Experimentation has also focused on achieving near-flawless logistics delivery statistics for just-in-time delivery of all materials for each discrete work task at the on-ship job location. Reportedly, this was done for the U.K.'s work on the Queen Elizabeth aircraft carrier.

More experimentation of this sort is possible with three NSS shipyards facing decades of work, assuming that the two client departments confirm and fund the shipyards as responsible for ship design well before project launch. This is possible if a capability sustainment approach becomes available.

One qualification is noteworthy. The differences in complexity between buildings and warships mean that planning will always require changes during ship production of first-of-class vessels. However, improving the time available for detailed planning will better inform NSS shipyards of high-risk areas and allow experimentation to minimize issue emergence.

Estimates of Cost and Schedule

In terms of initial forecasts, very sophisticated ship models of all kinds exist and Canada's Parliamentary Budget Office uses them regularly. They do require basic ship parameters as inputs, but ranges of possibilities can be generated when in doubt to allow better informed initial ship estimates. Although such a model may have been just as available in DND during my tenure, its use for generating cost estimates within the financial group was not apparent to me.

Reducing Risks from Canadian ITB Modifications

In terms of ITBs, the approach in the RFP could move closer to the method Australia uses in its Hunter-class project, such that any Canadian offsets chosen by bidders were not to be offered in bids or risk jettison if/when they could cause schedule delays or jeopardize performance. This could minimize damage to the intent of acting fast from low technical readiness level (TRL) Canadian products at the time of bidding.

Conclusion

All bidders are motivated to win contracts, but they are equally motivated to improve their reputations by delivering quality products on time. Nevertheless, timely delivery in the exceptionally uncertain and risky business of complex acquisitions is anything but common, even when experienced clients enable competent prime contractors by establishing project requirements and performance parameters.

Navigating complexity in military acquisition shipbuilding and other weapons system platform projects by using emerging practices has yet to provide schedule improvements, let alone guarantees. However, the trust built by structured collaboration and appropriate client expectations, when buttressed by transparency as challenges emerge, can mitigate the risk of unnecessary delays and the loss of government support. As Stephen M. R. Covey's book title says, "The Speed of Trust [is] The One Thing that Changes Everything."[16]

Unfortunately, such hard things are still hard, even for Santa.

[16] Stephen M. R. Covey, *The Speed of Trust - The One Thing that Changes Everything*, (New York: Simon and Schuster, 2008).

About the Author

After retiring from the Royal Canadian Navy (RCN) as a Rear-Admiral, ***Ian Mack*** *served for a decade (2007-2017) as a Director-General in the Department of National Defence, responsible for aspects of the launch of the National Shipbuilding Strategy, and for guiding DND project managers for three RCN shipbuilding projects and four vehicle projects for the Canadian Army. Since leaving government, he has widely offered shipbuilding and project management perspectives. Ian is a Fellow of the International Centre for Complex Project Management, of the World Commercial and Contracting Association and of CGAI. He also is allied with Strategic Relationships Solutions Inc.*

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