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## THE VALUE-DRIVEN MAINTAINER: A BOTTOM-UP APPROACH TO PRESERVING THE RCN'S COMPETITIVE ADVANTAGE

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TO PRESERVING THE RCN'S COMPETITIVE ADVANTAGE**

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## **THE VALUE-DRIVEN MAINTAINER: A BOTTOM-UP APPROACH TO PRESERVING THE RCN'S COMPETITIVE ADVANTAGE**

### **AIM**

1. The Royal Canadian Navy (RCN) and the Naval Engineering and Maintenance (NEM) community tend to reactively respond to outsourcing and organizational change. This paper argues that a bottom-up value-driven approach will prepare the future NEM community to proactively evaluate and communicate re-investment and divestment decisions. Three key components to achieve such a forward-looking culture include the need to develop a value-driven maintainer, integrate and measure the entire NEM organization, and develop a strategic communications skillset.

### **INTRODUCTION**

2. In 2011, former Prime Minister Harper commissioned a report from General Leslie, former Chief of Transformation, resulting in the consideration to outsource the RCN's East and West coast Fleet Maintenance Facilities (FMF).<sup>1</sup> In response, the FMFs collectively developed a comprehensive strategic initiative as well as foundational directives on preserving its strategic capabilities. Through objective data-driven evidence and sound analysis, the government was convinced to preserve the FMFs.

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<sup>1</sup> Andrea Gunn, "Rumoured top pick for defence minister could be bad news for Halifax," *The Chronicle Herald*, 21 October 2015.

## DISCUSSION

### Defending Strategic Capability

3. In the past decade, the Government of Canada (GOC) has rightfully challenged the value of their investment in the military, often seeking empirical proof. Yet, military officials habitually struggle to produce the required information in a timely and synchronized manner. Hence, understanding and communicating such value to the government remains a prevalent issue for the RCN.

4. In Leslie's report on transformation, the RCN's assets and activities were scrutinized, concluding that ship repair inefficiencies observed in the FMFs could easily be supplemented by industry.<sup>2</sup> The realization that such drastic measures could conceivably be taken without proper analysis prompted the creation of the Naval Engineering and Maintenance Strategic Initiative (NEMSI), a proactive approach towards improving the FMFs.<sup>3</sup> When the GOC contracted KPMG to identify inefficiencies and solutions to optimize the Department of Defence (DND), NEMSI was already in place to complement their RCN-specific efforts. KPMG's findings largely validated the efforts of NEMSI, convincing senior leadership to recognize "that the FMFs will retain strategic capability for all future classes of ships."<sup>4</sup> Rather than outsource the FMFs, NEMSI demonstrated through concrete data that the FMFs needed to grow in order to sustain the future fleet. While the RCN effectively responded to this crisis-in-confidence from the government, scrutiny from a new government will certainly arise. And if history repeats itself,

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<sup>2</sup> Department of National Defence, "Report on Transformation 2011," last modified 23 August 2016, <http://www.forces.gc.ca/en/about-reports-pubs/transformation-report-2011.page#a4-3>

<sup>3</sup> Chris Earl, Stephane Lafond, and Simon Dubois, "NEM Strategic Initiative: Future Strategic Capabilities of the Fleet Maintenance Facilities," *Maritime Engineering Journal* 81, (Fall 2016): 12.

<sup>4</sup> *Ibid.*, 13.

the successes and lessons learned from NEMSI will be forgotten to a new generation of maintainers.

### **Delivering Value**

5. History does not have to repeat itself. There is a way to fundamentally change the culture of the NEM community into a proactive organization; by being value-driven. By focusing on continuously delivering value added tasks, the community inherently builds a leaner results-oriented institution. This complements a prevailing theory in business; improve core competencies, defend competitive advantages, and outsource non-core/inefficient tasks.<sup>5</sup> NEMSI took the same route, identifying the FMFs as a strategic capability that needed preservation to maintain the RCN's competitive advantage over its potential adversaries.

6. The NEM community are among the most well-trained and proficient engineers and technicians in Canada. The development and implementation of policies, procedures, and training surrounding maintenance are core competencies of the community. However, there is a penchant for protectionism, resulting in a culture that is willing to change but often in a "reactive, halting, and even grudging" manner.<sup>6</sup> While protectionism ensures continuity, such culture can hamper an institution's ability to quickly respond to external forces. In the private sector, competitive market forces drive industry to continually strive to be as responsive and flexible as possible to meet market uncertainty.<sup>7</sup> Industry typically maps its value chain,

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<sup>5</sup> Ilyas R. Mohammed, Ravi Shankar, and D.K. Banwet, "Creating flex-lean agile value chain by outsourcing: An ISM-based interventional roadmap," *Business Progress Management Journal* 14, no. 3 (2008): 339.

<sup>6</sup> Department of National Defence, "Report on Transformation 2011," last modified 23 August 2016, <http://www.forces.gc.ca/en/about-reports-pubs/transformation-report-2011.page#a4-3>

<sup>7</sup> Ilyas R. Mohammed, Ravi Shankar, and D.K. Banwet, "Creating flex-lean agile value chain by outsourcing: An ISM-based interventional roadmap," *Business Progress Management Journal* 14, no. 3 (2008): 342.

capturing all core and non-core activities that deliver profit. Any supporting activities that cannot be performed more efficiently than an outside contractor can potentially be outsourced. While processes and models can easily map out such activities, the permeating motivator throughout successful firms is the culture of continuous profit-seeking.

7. It is simple to grasp why a profit-driven organization continually seeks improvement. However, this is also applicable to the public service. For the RCN, profitability lies in “combat, material, technical, and personnel readiness.”<sup>8</sup> Thus, any activity that can quantifiably contribute to readiness is an activity of value. Any activity that is a strategic advantage over the RCN’s adversaries should be rigorously preserved and improved upon. Any peripheral task that offers questionable value is an activity to be outsourced, eliminated, or optimized.

8. Similar to industry, the NEM community needs to build a culture that aggressively seeks to optimize readiness from the bottom-up. In doing so, the NEM community will become an effective self-governing institution that can responsively demonstrate accountability and value to the government and RCN. This ensures that the NEM community evolves in step with industry, preserves its relevancy, and safeguards the strategic capabilities of the RCN.

9. To achieve such goals, engineers and technicians need to re-orient education, training, and mentorship towards the art of value generation. The NEM community needs to produce maintainers that are not only excellent technical practitioners, but also intrinsically and extrinsically motivated to continuously deliver value to the enterprise. This may appear to be a “business skill” but through the lens of readiness, it is a critical military skill.

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<sup>8</sup> Ron Lloyd speech, Flag Hoist Remarks, 21 July 2016.

10. That being said, the RCN continues to admirably develop leaders with the requisite skills and ethos. However, this paper argues that training and advancement in trade should also emphasize the ability to “lean forward” and be entrepreneurial in spirit. In terms of characteristics, a value-driven maintainer possesses:

- a. Awareness. Identify how the activities they conduct contribute to readiness.
- b. Communication Skills. Effectively aggregate complex information and communicate its value and meaning.
- c. Innovation. Anticipate and exploit the internal and external forces that can impact activities contributing to readiness.

11. In addition to conventional technical training, complementary fields in managerial accounting, industrial engineering, lean methodology, business analytics, strategy, and marketing can help to cultivate a cadre of value-driven maintainers.

12. Opponents of this concept may argue that training engineers and technicians beyond a conventional technical skill set is wasteful. However, there is a growing expectation for maintainers to possess non-traditional skill sets. For example, a high profile United Kingdom (UK) report from Bernard Gray criticized “a lack of business skills” in the UK’s Defense Equipment Support (DE&S) section (DGMEPM equivalent). In response, the UK Ministry of

Defence (MoD) has considered outsourcing their entire 16,000 person DE&S section.<sup>9</sup>

Developing a value-driven culture is not simply a business skill; it aligns the RCN's motivations with the growing expectations of government for well-rounded maintainers.

### **Measuring the Enterprise**

13. The RCN's full adoption and integration of the Defence Resource Management Information System (DRMIS) will play a critical role in achieving a value-driven culture. DRMIS is an enterprise resource planning (ERP) platform that collects data at the tactical level for decision makers at the strategic and operational levels.<sup>10</sup> It is the informational glue of the enterprise.

14. Currently, DRMIS runs across pockets of the enterprise with varying levels of integration and enthusiasm. Thus, data is being captured and effectiveness is being measured, but with varying interpretations. Consequently, more time is spent debating the merits of a data set vice actual commitment to improvement.

15. To highlight a best practice, the FMFs' integrated adoption of DRMIS critically enabled the leadership to communicate its value as a strategic asset to the GOC. However, this undertaking also identified problem areas. FMF's maintenance groups could quantifiably demonstrate value through labour hours and job completion statistics because their business processes mandated the DRMIS data entry. However, approximately 30% of the remaining

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<sup>9</sup> William T. Kirkwood, "Inherently Governmental Functions, Organizational Conflicts of Interest, and the Outsourcing of the United Kingdom's MOD Defence Acquisition Function: Lessons Learned from the U.S. Experience," *Public Contract Law Journal* 44, no. 3 (Spring 2015), 446.

<sup>10</sup> Vanguard, "A single solution for tracking the military's materiel," last updated 1 September 2012.

organization remained unmeasured and were thus vulnerable to managerial decisions rooted in instinct vice evidence.<sup>11</sup>

16. Within the FMFs, support staff such as finance, travel, pay, and information technology (IT) went largely unmeasured in DRMIS, complicating their perceived value to the overall enterprise. It is reasonable to posit a correlation between the productivity of support staff and the productivity of maintainers delivering material readiness. But without data, there is no empirical understanding of the value support staff offer. Consequently, in the event of budget cuts, support staff become expendable as there is no data to substantiate their value. A hypothetical decision to downsize a travel staff of five to two individuals could have disastrous impacts on the morale and productivity of 800 maintainers. Conversely, increasing support staff or outsourcing the entire group could increase unit productivity. Without data, any of these decisions are guesses at best. The key takeaway is that if organizations cannot measure the value of an activity, then any decision to grow, downsize, or outsource that activity is replete with avoidable risk.

17. This example has enterprise wide implications. Large swaths of the entire NEM enterprise, ranging from training to the Director General of Maritime Equipment and Programme Management (DGMEPM) remain unmeasured in DRMIS, leaving the value they provide intrinsically known but quantifiably vacuous. If there is no ability for the government to quantifiably understand what thousands of public servants and engineers offer in terms of value, they potentially become expendable. Other nations have experienced this very issue. The US has outsourced many of its procurement and maintenance programs through the Lead Systems Integrator approach. As previously mentioned, the UK MoD has also strongly considered

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<sup>11</sup> Overhead staff includes managers of a certain rank level and support staff (i.e. Finance, HR, IT, etc.)

outsourcing DE&S.<sup>12</sup> Thus, the NEM community cannot expect to be indispensable and must adapt to a competitive globalized economy to remain relevant.

18. Ironically, DRMIS is as much of a problem as a solution. Powered by SAP, an industry leading ERP developer, DRMIS has proven notoriously difficult to implement. Many organizations have tried to implement SAP and faltered.<sup>13</sup> For almost a decade, the RCN has struggled with DRMIS but has finally attained a critical mass of adopters. Integrated adoption of DRMIS across the entire NEM community will continue to be challenging. However, with continued leadership support and key upgrades, including an improved user interface, measuring the entire enterprise in an integrated manner is entirely possible.

### **Strategic Communications**

19. A value-driven culture can only be effective if value can be properly communicated. While there are many critical components to a value-driven maintainer, internal and external strategic communications is the most significant piece. The right culture and comprehensive measurable framework will fail if maintainers cannot communicate pertinent value-oriented observations and recommendations to decision-makers.

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<sup>12</sup> William T. Kirkwood, "Inherently Governmental Functions, Organizational Conflicts of Interest, and the Outsourcing of the United Kingdom's MOD Defence Acquisition Function: Lessons Learned from the U.S. Experience," *Public Contract Law Journal* 44, no. 3 (Spring 2015), 450.

<sup>13</sup> Mark Tebbe, "War stories outnumber successes when it comes to implementing SAP," *InfoWorld*, 7 July 1997.

20. In 1999, Marine Commandant General Krulak argued that technology, globalization, and economic interdependence called for an innovative, mentally agile “strategic corporal.”<sup>14</sup>

Similarly, a value-driven maintainer is technically proficient, industry savvy, and most importantly, a strategic communicator. A strategic communicator is one that understands the political and industrial implications of decisions and how it relates to the value they provide. Such a maintainer must be able to competently communicate with industry and government in a complex environment to remain credible.

21. The current training system and philosophy has the fundamentals to create effective conventional communicators. Presently, comprehensive verbal board examinations and staff work for the RCN’s maintainers have solidified the ability to fuse complex technical data into succinct decision briefs for tactical commanders. To develop a strategic communicator, one must be trained to further fuse that data and effectively communicate to strategic and operational commanders, industry, and the public service.

22. While the training system has the right structure to implement strategic verbal and written communications training, there is a gap in terms of developing strategic visualization skills. The current training maintainers receive in data visualization is ad hoc and dependent on their level of interest and the requirements of their posting. In the rapid, high-demand, visually-oriented information age, verbal and written communications are often too slow in conveying a message. A concise and well-conceived info graph has the power to shape strategic decisions in a more responsive and desired manner.

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<sup>14</sup> Charles C. Krulak, “The Strategic Corporal: Leadership in the Three Block War,” *Marine Corps Gazette* 83, no. 1 (January 1999): 21.

23. In industry, there is recognition that visualization has immense potential to boost productivity, reduce waste, and to create new insights, which all lend to profitability and competitive advantage.<sup>15</sup> However, studies also suggest that choices in visual representation can influence the psychological aspect of decision-making.<sup>16</sup> With the immense amount of products, techniques, and theory behind visualization, one cannot responsibly allow this critical skill to be developed in an ad hoc manner. The burgeoning Defence Analytics program, Command Analytics Support Centers (CASCs), and the RCN's enthusiastic adoption of data analytics demonstrate that there are willing resources to develop skilled data visualizers. The NEM community must take advantage of these resources.

## CONCLUSION

24. The pitfall many organizations have unfortunately faced is the misidentification of what competencies should be protected, improved, or outsourced. There are examples where states have unwittingly outsourced a key capability, leaving them strategically vulnerable. The UK MoD's outsourcing of aircraft carrier maintenance and procurement contracts have led to a decline in core capabilities within the MoD and "new knowledge monopolies" resident in the private sector.<sup>17</sup> A lack of articulating the UK MoD's core competencies resulted in British armed forces "lacking personnel to fill mission roles if contractors are not present or available."<sup>18</sup>

In 2007, Blackwater paid its security guards \$1,222 a day while a US Army sergeant earned

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<sup>15</sup> Nicholas H. Lurie and Charlotte H. Mason, "Visual Representation: Implications for Decision Making," *Journal of Marketing* 71, no. 1 (January 2007):172.

<sup>16</sup> *Ibid.*, 173.

<sup>17</sup> Nigel Caldwell and Mickey Howard, "Contracting for complex performance in markets of few buyers and sellers: The case of military procurement," *International Journal of Operations & Production Management* 34, no. 2 (2014):283.

<sup>18</sup> Lindy Heinecken, "Outsourcing Public Security: The Unforeseen Consequences for the Military Profession," *Armed Forces & Society* 40, no. 4 (2014):635.

\$190 a day, leading to a “decline in self-worth and status of career soldiers.”<sup>19</sup> Missteps by many nations demonstrate how improper outsourcing affects capability and even degrade the very fundamental ethos of the profession of arms.

25. The RCN is in a period of dramatic renewal. The introduction of Arctic Offshore Patrol Ships, Joint Support Ships, and Canadian Surface Combatants, along with the continued existence of Halifax Class frigates and Victoria Class submarines means that maintenance demand will exceed the current capacity of maintainers. Industry and the government will most certainly recognize this and will naturally look towards outsourcing some of these functions to expedite delivery. However, doing so necessitates value-driven maintainers who understand the market forces that shape the value of outsourcing and who can effectively communicate what should be outsourced and what should be preserved as an RCN strategic capability.

26. Increasingly, studies have shown that a “public-private hybrid that resembles a monopsony represents a more secure situation for countries considering outsourcing elements of their national defense.”<sup>20</sup> Echoing NEMSI, such relationships preserve capability and can potentially strengthen the military industrial relationship. However, maintainers that operate in such an environment must evolve accordingly and be able to thrive in such complex technical domains.

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<sup>19</sup> Ibid., 636.

<sup>20</sup> Charles W. Mahoney, “Buyer Beware: How Market Structure Affects Contracting and Company Performance in the Private Military Industry,” *Security Studies* 26, no.1 (2017):59.

27. Virtually the entire NEM enterprise can arguably be outsourced if the proper framework and culture is not developed. NEMSI effectively demonstrated the benefits of articulating and measuring value. However, it also highlighted a need to change the culture of the NEM enterprise from “stewardship” to “value-driven”. This is not a daunting or onerous task. A value-driven maintainer is simply a frame of mind, one that when organizationally pervasive, will ensure the future relevancy of the NEM community.

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