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THE CORPS OF RCEME CLOSING THE GAP IN PROJECT MANAGEMENT

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Exercise Solo Flight

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CLOSING THE GAP IN PROJECT MANAGEMENT**

Maj Trevor Bourgeois

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THE CORPS OF RCEME CLOSING THE GAP IN PROJECT MANAGEMENT

INTRODUCTION

The ability to manage discrete activities within a given period of time with constrained resources, time and skills is an activity that most of us perform on a day to day basis in our personal life or at work. Due to the ongoing use of these skills at home and the workplace, it is not surprising that the term Project Management, which is a description of these abilities and management functions, is often not part of the daily lexicon for most individuals. Unfortunately, this absence is also prevalent within industry despite its importance to an organization where project management, and the abilities of the Project Manager (PM), is an important factor in determining whether organizational initiatives and projects will succeed or fail.¹

Projects are an activity within all organizations within the private and public sectors. The broad definition of a project is “a temporary endeavor undertaken to create a unique product, service, or result.”² Similarly, Project Management is by definition “the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements.”³ For the context and purposes of this paper, the term will be used specifically within the scope of the acquisition of goods and equipment in support of land based capability and requirement.

Government and the Department of National Defence (DND) are accountable to the public to ensure resources of manpower and public dollars are spent effectively. One visible area of accountability in the media today is the ability, or lack thereof, to acquire major equipment for

¹Terry Cooke-Davies, “The ‘real’ success factors on projects,” *International Journal of Project Management* 20, (2002): 189

²Project Management Institute, *A Guide to the Project Management Body of Knowledge*, Pennsylvania: Project Management Institute, Inc., 2013, 3.

³*Ibid.*, 2.

the Canadian Armed Forces (CAF) where Project Directors (PDs), PMs and Procurement Specialists, primarily employed in the National Capital Region out of Gatineau, Quebec, work through and deliver a product, service or capability to the CAF. Within the Army structure, the PM function is held by the Corps of RCEME primarily within its Officer cadre.

The author acknowledges the position that acquisition and project management is best suited for public servants who specialize in PM. This position is valid from a perspective of consistency of the PM as these members can be held in positions longer to see projects move through the entire project cycle where in contrast, military members often rotate through PM positions on a cyclical basis. This analysis is not the purpose of this paper as there is clear documentation that the Corps of RCEME must have a role in project management. To refine the analysis, this paper will look exclusively at the RCEME Officer and conclude that the Corps of RCEME must invest in a deliberate project management development program within an Army framework greater than the existing structure.

First, the importance of project management will be explained from a public, defence and private sector perspective. Second, the role of the RCEME Officer and its role as PMs within the CAF will be explained. Third, once the importance of PM and RCEME Officers are presented, a detailed analysis will be performed within the RCEME Officer cadre including a positions, training program and its professional development system. Fourth, the personal evaluation system will be investigated along with succession planning policies. Fifth, the existing recruitment documents will be examined. The analysis will conclude with a determination that the Corps of RCEME must take a more deliberate approach to project management training and development for its Officers. Lastly, recommendations for further study will be proposed as this

issue is relevant to not only the Army and its land equipment managers but to the CAF as a whole.

IMPORTANCE OF PROJECT MANAGEMENT

Academic Literature

To date there is no agreed upon list of activities and tasks to ensure a project is successful. Defining success is also debatable and is dependent on the lens the project is viewed. For example, success to the user could mean delivery of some service or equipment despite an overrun of costs which could be considered a failure in the view of project management. For the purposes of this paper, success is taken from the perspective of the Corps of RCEME and its ability to produce competent and trained PMs. Although this measure does not guarantee success of a given project, if proper training and development is offered it increases the likelihood of positive project outcomes for projects in which RCEME Officers will be in. Using this perspective also allows for a deliberate review of the Corps itself while leveraging quantifiable and explainable evidence, facts and figures.

Project management as a body of knowledge began when the Project Management Institute (PMI), a not for profit organization, was established in 1969 to support the project management profession to “improve organizational success and further mature the profession of project management through globally recognized standards, certifications, resources, tools, academic research, publications, professional development courses.”⁴ The PMI is embedded in ADM(Materiel) (ADM(Mat)) PMCD program discussed in a later section.

For a project to be successful there must first be acknowledgement project management is an important for a project’s success. Munns and Bjeirmi propose several factors which

⁴Project Management Institute, “About Us,” accessed 1 May 2018, <https://www.pmi.org/about>.

contribute to project success. Factors within the scope of a PM within the RCEME context include careful planning, commitment to the project, appointment of a skilled PM, clear and adequate information flows and the ability to adapt to change.⁵ Skilled PMs have also demonstrated the ability to reduce costs on most projects from 20 - 35% within the defence community.⁶ Separate empirical analysis by Cooke-Davies identified 12 “real” success factors to project success - all of them are directly tied to the people and individuals involved in projects.⁷

Project Management and Policy within the Department of National Defence

Within Government, there is substantial policy coverage dedicated to the importance of project management. From the Financial Administration Act (FAA), a Federal Level document, the government of Canada’s Policy on Project Management applies to the Department of National Defence as an organization listed in the FAA under schedule I organizations.⁸

Additionally, the Treasury Board of Canada Secretariat Policy on the Management of Projects has been established to ensure that the appropriate systems, processes and controls for managing projects are in place to support the achievement of project and program outcomes while limiting the risk to stakeholders and taxpayers.⁹ It is also intended to ensure value for money, sound stewardship of the project, accountability for outcomes is transparent and outcomes are achieved within time and cost constraints.¹⁰

⁵A.K. Munns, B.F. Bjeirmi, “The Role of Project Management in Achieving Project Success,” *International Journal of Project Management* Vol. 14, no. 2 (1996): 82.

⁶John Dowdy, Diana Farrell, “Aerospace Defence Practice Fiscal shock, combat awe,” *McKinsey&Company* (June 2014): 10.

⁷Terry Cooke-Davies, “The “real” success factors on projects,” *International Journal of Project Management* 20, (2002): 189.

⁸Minister of Justice, Financial Administration Act R.S.C., 1985, c. F-11, Current to March 26, 2018. Last amended on March 12, 2018, 131.

⁹Treasury Board of Canada Secretariat, “Policy on the Management of Projects,” Last accessed 28 April 2018, <https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=18229>. Section 5.1.

¹⁰*Ibid.*, Section 5.2.

Within DND the VCDS established a dedicated program to ensure the professional development and qualification of PMs within DND¹¹ called the Project Management Competency Development (PMCD) Program. This program is robust; it consists of four certification levels¹² built on 27 competencies that include not only technical aspects of project management but also institutional and leadership elements unique to the institution.¹³ This guidance also directed Chief of Military Personnel (CMP) to “integrate the DND PMCD qualification into the Military Individual Training and Education (MITE) system and work with career managers to facilitate the application of the DND Standard for PM Competence within the applicable occupation training.”¹⁴

The collection of policies and professional development programs in place demonstrate the importance of project management; however, it is also important to consider the risk of failure on the government and the Department. These include CAF related impacts such as delays in capability and expenditures, but can also impact the level of trust Canadians place on the institution and the government. Instances of perceived failures are common in the media, most obvious with Canada’s National Shipbuilding Strategy, replacement helicopters for the Sea Kings and the CF-18 fighter replacement project. Although the government bears the brunt of negative press, internal scrutiny is focused at DND and the Assistance Deputy Minister (Materiel) (ADM(Mat)) who “delivers the materiel and services required by the Department of

¹¹Donaldson, A.B., VAdm., *VCDS Direction - Project Manager Competency Development Programme*, National Defense Headquarters Ottawa: file 1950-1 (DCOS(Mat)), 29 July 2013, 1.

¹²Deputy Minister of National Defence, A-PD-002-000/AG-000, *Standard for Project Manager Competencies*, April 2016, 2-1.

¹³*Ibid.*, 3.

¹⁴*Ibid.*, 7.

National Defence and the Canadian Armed Forces.”¹⁵ For these reasons, it is in the Department’s interest to get Project Management right and the lead for this is the PM.

Role of the Project Manager within the Department of National Defence

Prior to discussing the PM, a distinction between the PD and the PM must be made. The Project Director is the functional authority for the operational requirement on behalf of the sponsoring organization¹⁶ that is accountable for achieving objectives in the options analysis phase and establishes the baseline objectives in terms of scope and performance, cost and schedule.¹⁷ As projects develop through the project cycle, a PM is assigned to take on a significant coordinating role.¹⁸ Ultimately, “The PM ... is responsible for the overall execution of the assigned work within the specified timeline and the allocated resources until the successful completion of the project (delivery of work on time and on budget).”¹⁹ As discussed previously, there are a number of factors which support project success including technical abilities and “strong interpersonal skills, general management knowledge and skills, strong understanding of the environment in which the project exists and a good understanding of the application area targeted by the project.”²⁰ Within the Army, The Corps of RCME fill allocated PM positions, therefore the Corps must take the necessary steps to ensure it is developing competent PMs.

¹⁵Department of National Defence, “Assistant Deputy Minister (Materiel)”, accessed 7 May 2018, <http://www.forces.gc.ca/en/about-org-structure/assistant-deputy-minister-materiel.page>.

¹⁶“Project Director Terms of Reference,” Last accessed 29 April 2018, <http://materiel.mil.ca/en/business-functions-project-management/project-director-terms-of-reference>.

¹⁷*Ibid.*

¹⁸*Ibid.*

¹⁹Department of National Defense, A-PP-005-000/AG-002, *Procurement Administration Manual (PAM)*, Ottawa: DND Canada, Revision 87, March 2018.

²⁰Beaupré, François, “Military Projects and Military Operations: Apples and Oranges, but Both are Fruits,” CSC 31, Canadian Forces College, 2005, 3.

The RCEME Corps - The Land Equipment Managers

This section will discuss the military aspect of acquisition and procurement in relation to the land component. The Corps of RCEME is the primary group that is responsible for the CAF Land Equipment Management System (LEMS) where the role of LEMS is to maintain the operation capability of all land technical equipment.²¹ It is important to amplify that this is not Army exclusive; the Corps retains responsibility for Land Equipment Program Management (LPM) for all land based equipment within the Canadian Armed Forces, where “equipment management is the process by which the equipment is planned for, acquired, fielded, maintained and disposed of.”²² “Electrical and Mechanical Engineering Officers lead the soldier technicians who keep equipment in top condition and work in every equipment life-cycle phase, from design, evaluation and acquisition through in-service support to eventual disposal.”²³

At the strategic level, the focus of LEMS is generating new equipment to sustain the Army and a land based capability within the CAF to accomplish national goals.²⁴ Significant acquisitions for the Army fall to ADM(Mat) under Director General Major Projects Division (DGMPD), while less complex and costly acquisitions are completed by Director General Land Equipment Program Management (DGLPEM). DGLPEM retains the projects related to in service support and disposal of the equipment at the end of life.

These two organizations are then the main implementer of acquisitions of Land equipment. DND has two main documents to support acquisition of equipment; first the Capability Investment Database (CID) kept internal to DND and second, the Defence

²¹Department of National Defense, B-GL-342-001/FP-001, *Land Equipment Management System*, Ottawa: DND Canada, 10 September 2001, 3.

²²*Ibid.*, 1.

²³Government of Canada, “Electrical and Mechanical Engineering Officer,” Last accessed 3 February 2018, <https://www.canada.ca/en/department-national-defence/services/caf-jobs/career-options/fields-work/engineers/electrical-and-mechanical-engineering-officer.html>.

²⁴Department of National Defense, B-GL-342-001/FP-001, *Land Equipment Management System*, Ottawa: DND Canada, 10 September 2001, 9.

Acquisition Guide (DAG) for Industry. From these two documents, the future project demand and existing demand can be examined. The CID indicates 80 active Army projects in various stages of the project cycle; 39 in identification, 8 in options analysis, 2 in definition, 25 in implementation and 6 in closeout.²⁵ Meanwhile, the DAG 2016 indicates 236 initiatives of which 69 are separate for land based equipment and services.²⁶ From these two documents, it is clear that projects will continue to be part of Army activities, and the Corps of RCEME must continue to fill PM roles and generate a competent cadre of PMs. Unfortunately, the existing training framework in place is insufficient to deliver PMs that can deal with the breadth and depth of challenges they will face.

PROJECT MANAGEMENT - THE MISSING LINK IN THE RCEME CORPS

RCEME Position Analysis

With the importance of Project Management discussed, the quantity of equipment expected to be invested in in the future and the role the Corps of RCEME has in this activity, it is clear RCEME Officers will fill many positions related to land based projects and PM positions. The following position review will confirm this statement. The follow on comparison against with established training requirements will identify the gap in addressing project management needs.

At a basic level, comparison of individual military job titles with civilian equivalency immediately highlights a discrepancy. The recently issued Occupational Specification for

²⁵Department of National Defense. *Capability Investment Database*. Last accessed 28 April 2018. http://cid-bic.forces.mil.ca/cid/CapitalProjectRisk_e.asp.

²⁶Department of National Defence. *Defence Acquisition Guide 2016*. Last accessed 3 May 2018. <http://www.forces.gc.ca/en/business-defence-acquisition-guide-2016/index.page>.

RCEME²⁷ does not include project management, in any capacity, as a related civilian occupation²⁸ where 2 of 18 military positions include the term “project” in its title for Majors (11%), and 3 of 8 job titles for LColts (38%) within the CAF. If Equipment Management Team (EMT) leaders are included in these numbers would increase to 3 of 18 for Majors (17%) and 4 of 8 for LColts (50%).²⁹ This, on its own, indicates a missing element in the drafting of the Occupation Specification as PMs and project management is an important function within the Corps of RCEME and within industry. Obviously, a statistic based on job titles will not provide a complete picture of project management activities within the Corps, therefore it is necessary to conduct further review of actual positions available to RCEME Officers.

The following table is based on data as of Feb 2018 and provides information on positions open to RCEME Officers. Column 1 represents available positions exclusively for RCEME Offices. Column 2 represents positions available to RCEME Officers which include those offered to any CAF Officer trade or CAF Officer Combat Service Support trade. Both have been provided to compare the potential scope of work for RCEME Officers. As part of the analysis, the line-by-line descriptor has been reviewed for project management as a core function of the position. Those seen as primarily PM functions are defined as “hard” PM where PM “related” includes project staff such as Systems Engineering Managers (SEMs) and Integrated Logistics System Managers (ILSMs).

²⁷Department of National Defence, A-PD- 055-002/PP- 001, *The Canadian Armed Forces Military Employment structure Volume 2 Occupational Specifications Part 1 Officer Occupations Occupation Electrical and Mechanical Engineering (EME - MOS ID 00187)*, Ottawa: DND Canada, 28 February 2017.

²⁸*Ibid.*, 16-17.

²⁹*Ibid.*, 7-8.

Rank	(1) EME ONLY CANADA	(2) EME Eligible CAN ADA (i.e. includ es CSS, ANY)	(3) EME ONL Y GAT INE AU	(4) EME Eligible Gatin eau (i.e. inclu des CSS, ANY)	(5) HARD PM/DPM/E MT Leader/EM T Coord, Fleet lead (LavII) (Excludes ILS, SEng as an example)	(6) % Of EME in Hard PM related positions vs. eligible (5 / 2)	(7) % Of EME in Hard PM related positions vs. EME only (5 / 1)	(8) PM/EMT/I LS/AMMO Related That could have projects (i.e. not EA or Corps Activities)	(9) % Of EME in Hard PM & PM Related positions vs. eligible (8 / 2)	(10) % Of EME in Hard PM & PM Related positions vs. EME ONLY (8 / 1)		
Capt/Lt	140	144	33	36	12	8.33%	8.57%	22	15.28%	15.71%	2	1
Maj	65	108	39	33	18	16.67%	27.69%	28	25.93%	43.08%	1	1
LCol	18	43	12	12	10	23.26%	55.56%	10	23.26%	55.56%	1	0
Col	4	12	3	3	2	16.67%	50.00%	2	16.67%	50.00%	0	0

Table 1: RCEME Position Availability Analysis³⁰

A number of deductions are made by comparing information in Columns 6 and 7 as well as from results in Columns 9, 10 for Capt/Lt to LCol/Cdr rank levels. First, when “hard” PM positions are assessed for RCEME Officers against RCEME only positions, 9% - 56% of the positions are PM specific. When this analysis is broadened to include all positions available to RCEME Officers (i.e. Any, CSS, etc.), 8% - 23% are PM specific. Second, when PM related jobs are included, such as Equipment Management Teams (EMTs), Integrated Logistics Support Managers (ILSMs) and Systems Engineering Manager (SEMs), it increases the percentage greatly to 16% - 56% for RCEME Officer specific positions compared to 15% - 23% when looking at those available to RCEME Officers.

³⁰Department of National Defence. *Career Manager RCEME Position Search*. Last accessed 2 Feb 2018.

What these figures demonstrate are important; roughly one tenth of RCEME officers are employed in PM or EMT leader positions and as individuals increase in rank that percentage increases to where nearly a quarter of RCEME LCol's will be PMs or EMT leaders. When these stats are compared with two other specialties within the RCEME Officer Corps, the Ammunition Engineering and Nuclear Engineering specialties which consist of 1% and .5% respectively, it is clear project management is a much larger field of RCEME Officers by a factor of at least 10.

Now that the size and percentage of sub-groups and positions offered to the RCEME Officer Corps have been presented, the training system will be reviewed to contrast how the Corp of RCEME focuses on each group.

RCEME Officer Training Framework

Like all trades within the CAF, the RCEME Corps is broken down into Development Period (DP) Levels 1 to 4 for officers. These levels will be analyzed for project management and specialty language.

First, the Qualification Standard (QS) for DP 1 describes in operational terms the detailed job requirements to perform the job as a RCEME Officers³¹ and is the first training step specific to this occupation. In relation to project management, this document only includes one project management related task - ET069 - Coordinating funding sources for workshop development projects. This task is listed as Not-Trained as the task is “rarely performed or not formal training is required.”³²

³¹Department of National Defence, A-P1-002-EME/PC-B01, *Qualification Standard EME Officer*, modified 2 Sept 2016, C-2/8, C-5/8.

³²*Ibid.*

The second step, DP 2, is intended for individuals as they progress in rank and experience and is intended for senior Captains and junior Majors. This DP 2 course,³³ commonly known as EME Advanced, formally introduces project management training via Performance Objective (PO) 205 - Apply Project Management Concepts within LEMS.³⁴ In practice, this PO translates into a five working day program for candidates to obtain the Project Management Plan (PMP) - Level 1 certification from the PMI.³⁵ Beyond this training at the DP 2 level, there is no formal or mandated training by the Army or the RCEME Corps in project management. Although PMP Level 1 is a first step to becoming a competent PM, it is only an overview of project management. In addition, it is not equivalent to PMCD L1 therefore at the end of DP 2 candidate's skill sets and certifications are insufficient to meet prescribed PM requirements within ADM(Mat).

In fact, language related to project management is absent from most training related correspondence and documentation distributed within the RCEME community. The only period where project management was frequently presented was at the implementation of the PMCD program where the RCEME Corps Director stated "Project Management is one of the key functions performed by officers of the Corps of RCEME."³⁶ The program was also identified as being "fundamental to the success of the Corps and the credibility of its officers."³⁷ Although there were changes to the evaluation system discussed later in this paper, project management remains largely an afterthought in the Corps by being a voluntary program versus a Corps of RCEME lead training and development.

³³ Department of National Defence, A-P1-002-ADX/PC-001, *QS EME O Advanced Competency Code ADAX*, modified 11 Aug 2015.

³⁴*Ibid.*, i, 2-9/17.

³⁵ EME Advanced Course Schedule, Fall 2011.

³⁶ K.J., Hamilton, Col, *Director RCEME Communiqué No 03/2015 – RCEME and the Project Management Competency Development*, National Defense Headquarters Ottawa: file 2184-1000- 1 (SO RCEME), 19 June 2015, 1.

³⁷*Ibid.*, 1.

Specialty Comparison

The lack of consistent and ongoing communication related to project management is concerning in itself, but when compared to the treatment of other specialties within the Corps it is clear that there is more attention paid to training smaller specialties than that of project management.

First, as discussed previously, the Corps of RCEME holds two specialties or sub-groups within the Corps; these are post graduate (PG) level degrees in Ammunition Engineering and Nuclear Engineering. These programs are both sponsored by Canadian Defence Academy, are competed annually and remain open under the Active Programs List.³⁸ This advanced level of training is directed towards only 2% of RCEME Officer specific positions. For 2018, the both PGs are available for four RCEME officers - one for Lt/Capt and another for a Major for each specialty.³⁹ Although these specialties are also voluntary programs like project management, the clear differentiation between the three is that the Corps continues to support separate postings for an advanced postgraduate program for two small sub-groups while only passively investing in its PMs. Further evidence can be seen who is on the agenda at the biannual Director RCEME (D RCEME) meeting. In this case, D RCEME has established Occupation Advisors (OAs) who brief on pertinent issues relevant to the Corps of RCEME. Of the three sub-groups of the officer corps, there is only representation from the Qualification Advisor Ammunition Specialist Officer⁴⁰ and not from nuclear or PM standpoint.

³⁸Department of National Defence, *Active Program List*, 5.

³⁹Chief Military Personnel, *2018 Post-Graduate Training (PGT) (Sponsored) Competition*, CANFORGEN 198/17 CMP 101/17 121923Z NOV 17, 5-6.

⁴⁰Occupation Advisor RCEME Ammunition Officer, "Occupation Advisor Ammo," <http://materiel.mil.ca/en/land-rceme/ammo-specialist-officers.page>, accessed 29 April 2018.

Considering the level of interest these two specialties have within the RCEME Corps for post graduate training, combined with the visible interest by D RCEME with respect to the ammunition specialty, it is clear project management remains low on the agenda for the Corps of RCEME.

Individual Evaluations

As the PMCD initiative progressed, the Corps also took steps to integrate it into its personal evaluation system. The result was that the Corps incentivized the PMCD program by granting potential points on annual officer merit boards for those that attained Level 2 certification.⁴¹

A detailed review of the SCRIT reveals 36 potential factors for Captains, 35 for Majors⁴². Of these values for potential, 31 and 30 points respectively by rank are essentially awarded by the CAF system and Career Manager and yearly PERs. The remaining five points for Education / Professional Certification are largely driven by entry requirements; most individuals are recruited as an engineer and as a result are awarded three points in this section as a Captain and two points as a Major. The remaining points can be obtained via several qualifications but there is an important distinction between the specializations above compared to project management.

Although both PGs and Project Management Program (PMP) are worth an extra point each, the project management certification is not a funded and dedicated PG. This essentially dictates that any member interested in doing a PMP is significantly hindered in doing so.

Although the Individual Training Plan (ILP) is established to support the member in obtaining

⁴¹K.J., Hamilton, Col, *Director RCEME Communiqué No 03/2015 – RCEME and the Project Management Competency Development*, National Defense Headquarters Ottawa: file 2184-1000- 1 (SO RCEME), 19 June 2015, 2.

⁴²J. P. S., McKenzie, Col, *Director RCEME Communiqué No 07/2017 - Updates to the RCEME Scoring Criteria*, National Defense Headquarters Ottawa: file 2184-1000-1 (SO RCEME), 1 September 2017, A-2/2.

such qualifications, members are expected to pay for the training out of pocket until training is completed and the member must complete the program on their own time unlike the specialty PGs. Alternatively, the PMCD elements described earlier can be obtained in a similar manner during work hours. This relieves some pressure by having the course available as part of existing daily routines, but does not negate existing the existing workload on members when they return from the course.

Further to this, the system of volunteering for project management training is flawed in that it is a passive approach to the development of competent PMs instead of actively addressing the requirement strategically within the Corps. It is possible that the scoring algorithm of the SCRIT may entice a small portion of RCEME Officers to pursue project management training; however, the overall low scoring benefit of one point when compared with the effort to obtain an external certificate on a member's own time are unlikely to translate into a substantial increase in qualifications and competencies within the Corps.

Tactical Versus Strategic Interests Within the Corps of RCEME

As explained previously, the RCEME Corps is the lead organization in management of the LEMS.⁴³ The main focus of the Corps has always been and will continue to be support to operations through the technical support and repair of land based equipment to support operations at the tactical level. Recently, the Corps of RCEME identified a gap in training where DP 1 qualified Officers are very capable and skilled at general Platoon commander related tasks but have limited knowledge of the equipment, capabilities and limitations of the equipment the

⁴³Department of National Defense, B-GL-342-001/FP-001, *Land Equipment Management System*, Ottawa: DND Canada, 10 September 2001, 3.

they are required to support.⁴⁴ In the 2010 - 2014 timeframe, the concept of the Technical Adjutant was developed⁴⁵ to address this gap by providing advanced training on land based equipment in fields of mobility, lethality, survivability and sustainability of systems and weapon systems.^{46 47}

Further focus on this concept was placed on this area in 2015-2016 where there were several working groups to assist in defining the problem space, identify gaps and realign training accordingly. Two working groups related to this paper were for The Land Equipment Engineer (Tactical LEMS) and Equipment Program Management (Strategic LEMS).⁴⁸ Tactical LEMS gaps were technical in nature prior to becoming a Unit Maintenance Officer of a first line unit and is currently being established at 202 Workshop. At the strategic level, LEMS identified a “very large knowledge and skill gap for RCEME Officers when entering EPM [equipment program management] positions”⁴⁹ and that “Institutional synergies are required between the Corps of RCEME”⁵⁰ and similar branches within CAF and DND.⁵¹ The following table and graphs will compare the tactical and strategic level positions.

⁴⁴J.P.S., McKenzie, Col, *Director RCEME and Corps SM Direction and Guidance (D&G) – RCEME Employment and Training Concept*, National Defense Headquarters Ottawa: file 3000-4 (DLEPS 4-5), December 2016, 3.

⁴⁵N. Eldaoud, Col, *RCEME 2021 – The RCEME in the Age of Adaptive Dispersed Operations*, 9.

⁴⁶*Ibid.*, 7.

⁴⁷J.P.S., McKenzie, Col, *Director RCEME and Corps SM Direction and Guidance (D&G) – RCEME Employment and Training Concept*, National Defense Headquarters Ottawa: file 3000-4 (DLEPS 4-5), December 2016, 3.

⁴⁸J.P.S., McKenzie, Col, *Director RCEME and Corps SM Direction and Guidance (D&G) – RCEME Employment and Training Concept*, National Defense Headquarters Ottawa: file 3000-4 (DLEPS 4-5), December 2016, 4-5.

⁴⁹*Ibid.*, 5.

⁵⁰*Ibid.*, 5.

⁵¹*Ibid.*, 5.

Rank	(1) EME ONLY CANADA	(2) Tech Advisor Posn (incl Maint O, SEM, G4 Maint, OC Tech Posn)	(3) Tech Advisor Posn "+"(incl Maint O, SEM, G4 Maint, OC Tech Posn) <u>PLUS ILS related</u>	(4) % Of EME in Tech Advisor Posn vs. EME ONLY (2 / 1)	(5) % Of EME in Tech Advisor Posn + ILS Related vs. EME ONLY (3 / 1)
Capt/Lt	140	62	65	44.29%	46.43%
Maj	65	21	26	32.31%	40.00%
LCol	18	2	3	11.11%	16.67%
Col	4	0	0	0.00%	0.00%

Table 2 - RCEME Tactical LEMS Positions⁵²

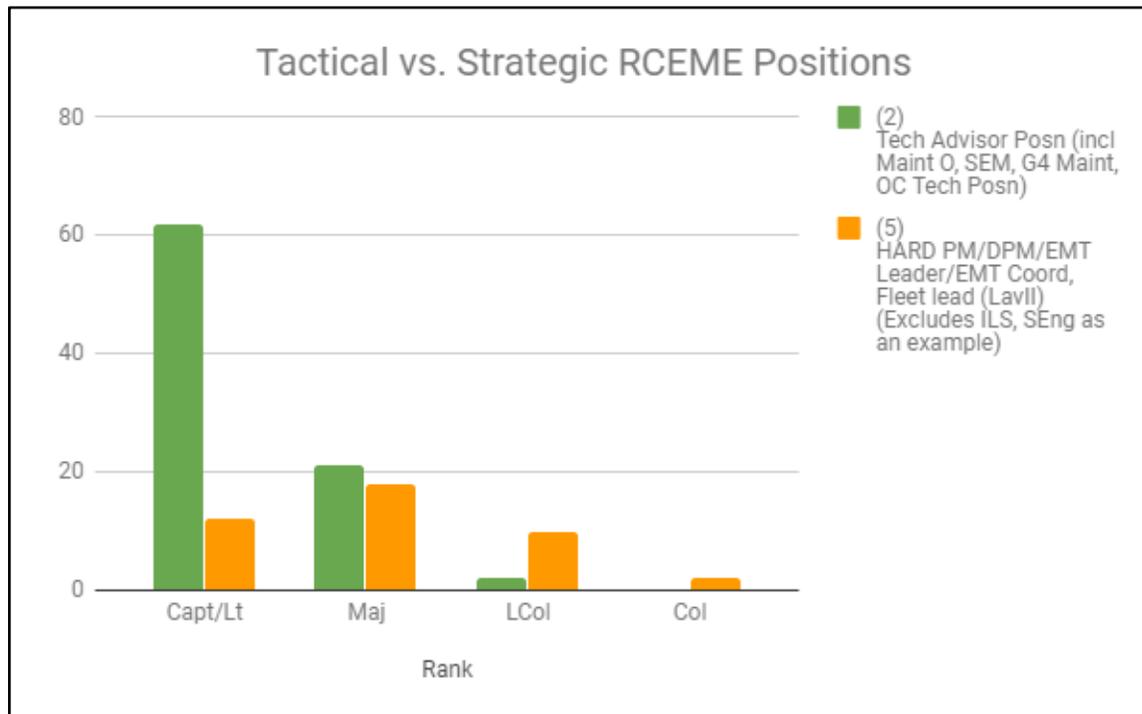


Chart 1 - Tactical and Strategic Position Comparison

⁵²Department of National Defence, *Career Manager RCEME Position Search*, accessed, 2 Feb 2018.

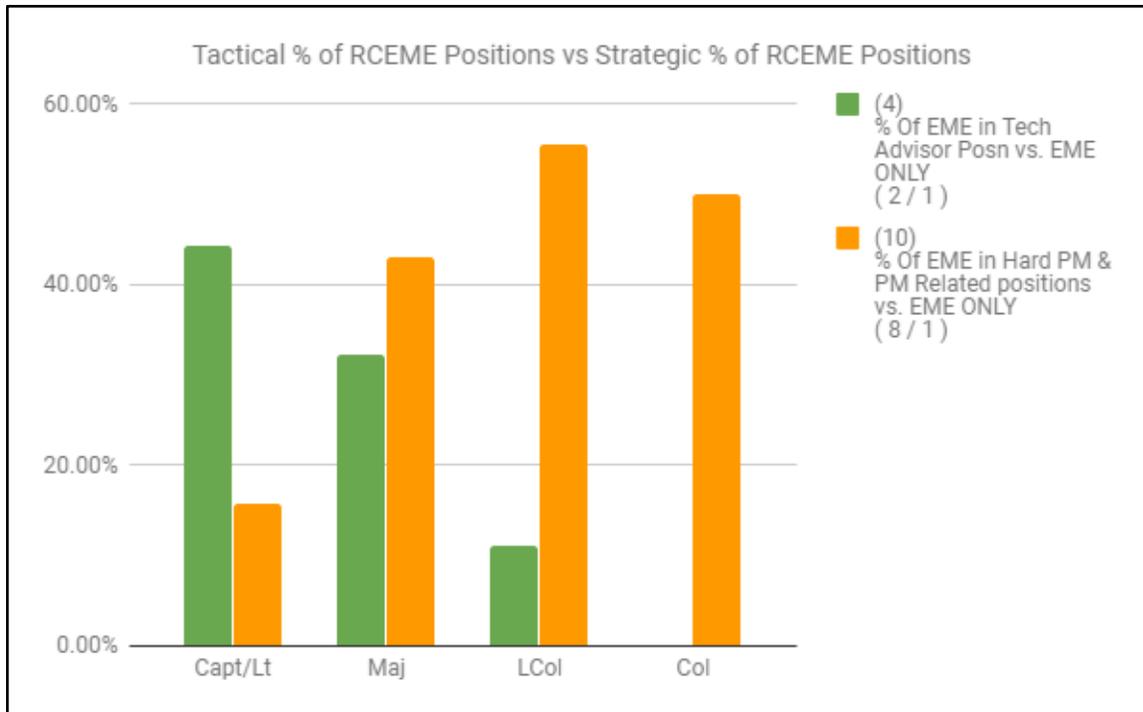


Chart 2- Percentage Comparison RCEME Positions

Table 2 has been prepared to demonstrate the quantity of positions at the tactical level that are intended to provide technical subject matter expertise on land based equipment and their capabilities in lethality, mobility, survivability and sustainability. Chart 1 a) depicts the importance of technical abilities at the rank of Lt/Capt and Major and b) highlights that as members progress in rank, technical positions decrease as well. Similar deductions can be made from Chart 2 which depicts the transition of tactical positions to strategic as officers advance to higher rank.

In terms of training, recommendations from the working group on Tactical LEMS made recommendations to introduce a training event to support tactical tasks and activities at the unit level. This is currently being established at 202 Workshop in Montreal as a RCEME led initiative. Conversely, the Strategic LEMS working group made no comment regarding use of

the existing PMCD program nor made recommendations to introduce a separate training event to address the “very large knowledge and skill gap for RCEME Officers when entering EPM positions.”⁵³

The collection of evidence above related to the tactical and strategic LEMS components demonstrate a lack of interest to address key strategic gaps when compared with the active approach to deal with tactical ones. Unless there is a change in vision and emphasis, the status-quo approach to project management within the Corps of RCEME will continue to rely on a volunteer based, ADM(Mat) solution versus one driven by the Corps and Career Managers.

Succession Planning

To support the development of officers for higher and select command and leadership appointments, the Army generated policies on Long Term Succession Plan (LTSP) and Short Term Succession Plan (STSP) where their aim is to place the most suitable person, in the right position, at the right time and to address gaps between current competency and future needs.⁵⁴ As this is an army level document, it is understandable that these policies do not contain language associated with project management. One must look at Corps related documentation to establish how this field is communicated within the community.

With regards to succession planning, the PMCD program is identified as desirable quantitative attribute of the Tier 6 Succession Planning Guidance for Captains post Maintenance Officer positions.⁵⁵ There is no further mention of project management or the PMCD as part of

⁵³J.P.S., McKenzie, Col, *Director RCEME and Corps SM Direction and Guidance (D&G) – RCEME Employment and Training Concept*, National Defense Headquarters Ottawa: file 3000-4 (DLEPS 4-5), December 2016, 5.

⁵⁴Commander of the Canadian Army, *Canadian Army Order 11-79 - Army Succession Plan*, accessed 29 April 2018.

⁵⁵J. P. S., McKenzie, Col, *D RCEME Succession Discussion 2017 Presentation*, 2017, 7.

Tier 5, 4 or 3 levels. From a strategic planning perspective, it is again clear that project management has little interest for the Corps of RCEME.

Recruitment

Lastly, in support of project management within the RCEME Corps, the community must not only look at development within the existing force but look at the recruiting posters, standards and scoring criteria to ensure those with project management skill sets are not missed as a desirable program within the Corps.

Upon review of the CAF Recruitment page for RCEME Officers, there is no reference to Project Management⁵⁶ being an important task of this trade while Ammunition Technical Officer and Nuclear Engineering are both present. This trend continues into the recruit scoring criteria where there is absence of project management related programs while a nuclear engineering degree is included as an acceptable degree.⁵⁷ The collective absence of promotional language and scoring incentives at recruit selection translates into a failure to recognize relevant certifications and degrees directly applicable to the project management component which RCEME Officers conduct within the CAF.

CONCLUSION

Project management is an important function within the public and private sectors and there have been demonstrated improvements when a trained and competent PM has been selected for a given project. Combined with policy direction and established DND programs for project management, those involved at generating competent PMs must take action to ensure

⁵⁶Director Personnel Generation Requirements, *Electrical and Mechanical Engineering (EME 00187) – Entry Standards (Reg F & Special Force)*, approved 03 Oct 2012.

⁵⁷Director Personnel Generation Requirements, *Electrical and Mechanical Engineering (EME 00187) – Entry Standards (Reg . & Special Force)*, approved 03 Oct 2012.

their personnel are ready for the quantity of diverse projects that are expected in both the CID and PAD. For land based equipment, the Corps of RCEME and its Officer Corps must be ready to take on the current and future challenges that will come with acquisition projects.

The position analysis demonstrated that up to one quarter of RCEME Officers will be directly performing PM positions yet the Corps does not provide dedicated training to groom its members for these tasks. When compared with other specializations within the Corps, PM development is infrequently discussed and training is performed in an adhoc manner. When looking at how the Corp of RCEME is working through tactical and strategic issues, it is clear that there is direct action being taken to generate tactical LEMS capabilities where there is none directed towards strategic LEMS other than the existing framework which will not solve strategic LEMS issues. The lack of a dedicated program within the Corps of RCEME to address identified gaps and no path forward to rectify them is inconsistent with both the research on project management and relevant policies.

To address these issues, the Corps of RCEME must first place PM on the agenda at biannual D RCEME meetings by establishing an OA PM and consistently communicate the importance of project management on strategic LEMS. Once this is done, a focused RCEME solution must be discussed at working groups to fully address strategic LEMS issues where a possible solution could be to introduce project management earlier than the DP 2 level while and a more robust training activity at the DP 2 level.

The Corps of RCEME is not alone in project management activities. Within DGLEPM, RCEME Officers work closely with public servants and as a result, any training program must be crafted compliment this service. Additionally, within each of the CAF services there are RCEME Officer equivalent trades which perform PM functions within their respective elements. Officers

in Communications fields are also often involved in project management or are PMs in support of communications equipment and are a potential source of information. Further review is required to establish how these trades address project management and whether there are any lessons to be learned from their approach as opportunities could exist to benefit project management within these CAF trades.

Lastly, another area not discussed within this paper is how RCEME NCMs relate to project management activities and their role in strategic LEMS as the Life Cycle Materiel Manager is filled by a senior NCM; this position also involves projects to acquire new equipment, spare parts and supplies. This should be added as an agenda item to future strategic LEMS working groups.

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