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A RECOMMENDATION TO REPLACE THE CAPABILITY INVESTMENT DATABASE TO COMPLEMENT THE PROJECT APPROVAL PROCESS RENEWAL

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Aim

1. Procurement of assets for the Department of National Defense has been reviewed by both Canadian Government and corporate entities with a view of creating a more efficient and effective process. The Project Approval Process Renewal (PAPR) initiative has begun to generate greater efficiencies in the process at the definition and implementation stages, however many of the recommendations made after the reviews have not been accomplished. The goal set for the department is a 50% reduction in the time required to complete projects and an increase in the number of projects managed.[1] The purpose of this Service Paper is to recommend that the Department of National Defence (DND) replace the enterprise Capability Investment Database (CID) with a new system to achieve this goal. This new management tool will standardize and format project administration, provide training and resources to the PD, enable the Business Intelligence (BI) analytic tools, and act as the system of record for all projects

Introduction

2. The process necessary to move a project from the identification phase of the Project Approval Process (PAP) through to completion has increased in the last decades. Currently there are 1400 steps required for this process and the reporting and administration requirements have

[1] Department of National Defence, *Project Approval Process Renewal MND Conditional Approval Process,* (National Defence Headquarters: file 7000-2 (DPAP) 2017), 3.

risen by 50% since 2010.[2] The PAPR phase one reduces a number of steps necessary for expenditure authorization under the purview of the Minister of National Defence (MND). Phase two, which will commence in spring of 2018, will streamline the funding approval process through Treasury Board (TB).[3] However, these improvements in the process do not address issues in the early stages of the process. Deficiencies noted in the first two stages of the PAP (Identification and Option Analysis) have been examined and there exists an opportunity to address concerns and create a more efficient system through a comprehensive reimagining of the CID.

3. These first two phases are on average the longest phases of a project and therefore are the stages where the most time and resource efficiencies can be realized. At the DND, these stages are the purview of the Project Directors (PD) who acts as the primary link between the project sponsor, the project staff and the end-user or client of the project. They are responsible for all project documentation such as the charter and statement of requirement and responsible for managing the approval process required for a project to move forward. In the early stages, PD's also develop costing estimates, briefings and the TB files necessary for the project's inclusion in the Investment Plan (IP).[4] The average posting period for a new untrained PD is 2 to 3 years during which that person must learn the intricacies of the department they are posted to and DND procedures as a whole. They are provided with a short introductory course to the PAP but normally learn project specific requirements such as contracting, cost estimation and drafting

[2] KPMG, *Defence Renewal Change Management Services: Project Approval Process Renewal 2016.* Vol 1, (Ottawa, 2016), 9; David Perry, *Putting the Armed Back in the Canadian Armed Forces: Improving Defence Procurement in Canada,* (CDA Institute, 2015), 7.

[3] Department of National Defence, *Project Approval Process Renewal MND Conditional Approval Process,* (National Defence Headquarters: file 7000-2 (DPAP) 2017), 5.

[4] KPMG, *Defence Renewal Change Management Services: Project Approval Process Renewal 2016.* Vol 1, (Ottawa, 2016), 68.

project documentation without formal training. [5] An improved and expanded CID will greatly benefit the early stages of the PAP as well as act as a gateway for all personnel relying on the project management field.

Discussion

Standardization

4. Reports generated by the PAPR project through KPMG and other entities have been examined to extract noted deficiencies in the process and propose a means to address them. A main theme throughout is the lack of a complete and centralized information resource system to improve the methods with which projects are generated and managed across the department.[6] Currently, the CID delivers that capability but is "ill-suited to the needs of its users" and must be to be replaced with a more comprehensive system.[7]

5. The first efficiency achieved by replacing the CID will be standardization. The current CID is a database of key project documents such as project charters and budget reports. However, project management workflow is a manual, paper driven process requiring all administration (document approvals, updates to minutes, briefings etc.) to first be completed and approved, then scanned for inclusion in the CID. There is no standard format for these documents as they are the responsibility of the projects themselves. Nor is there a system to manage the timelines or incompleteness of a projects CID page. Lastly, most CID documents are

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[5] David Perry, *Putting the Armed Back in the Canadian Armed Forces: Improving Defence Procurement in Canada,* (CDA Institute, 2015), 12.

[6] KPMG, *Defence Renewal Change Management Services: Project Approval Process Renewal 2016.* Vol 2, (Ottawa, 2016), 85.

[7] KPMG, *Defence Renewal Change Management Services: Project Approval Process Renewal 2016.* Vol 1, (Ottawa, 2016), 9.

scanned copies of the originals and therefore cannot be searched or "mined" for data beyond their file name.[8]

6. The new system would provide a full suite of preformatted templates of all required documentation and reports. The use of forms with content controls such as dropdown menus and text boxes ensures that the information required is correctly formatted and complete. The ability to add headers, footers or customized project art or tables, ensures that while standardized in format, projects are able to uniquely differentiate themselves. This preformatted documentation would also ensure the system remains up to date and accurate at all times. Out of date or incomplete entries would be highlighted and necessary corrections would be prompted. This is highly critical as the CID is currently the system of record referenced by the Capital Investment Plan Program Review (CIPPR) software that the department relies upon for managing its budget, resources and project prioritization. If it accesses an out of date database, its final analysis can be misleading or incorrect.[9] This formatting also enables the site to be searched and analyzed by individuals or BI applications.

7. Designed as a dashboard, a standardized system of this sort would provide real-time data to L1 and L0 organizations that is currently lacking. Through graphing, visual mapping and customized analysis, this system would allow staffs to identify interdependencies, bottlenecks or troubled projects and respond quickly. Currently, there is no means of looking across all projects

[8] ibid, 57.

[9] KPMG, *Defence Renewal Change Management Services: Project Approval Process Renewal 2016.* Vol 2, (Ottawa, 2016), 78.

without an exhaustive labour intensive survey of all 864 active projects on the CID.[10] There is an understandable concern that all of this aggregate information could become a security concern as industry contractors will have access to the database through the Defense Wide Area Network (DWAN).[11] However, standardization of complete forms also allows for security caveats to be placed not only on the pages themselves but also on certain documents or parts therein. This still allows content to be analyzed while keeping the specifics secure for authorized personnel only.

8. A view across projects with real-time accurate information also accomplishes one of the goals of the Strong, Secure, Engaged (SSE) defence policy. A standardized, searchable and user friendly platform for managing projects and budgets, improves the transparency into how and where the department allocates its budget.[12]

9. Providing a standardized and user-friendly means of administering a project has benefits beyond just accuracy, timeliness, and transparency. For example, generating administration such as budget reports to Senior Review Boards (SRB), Project Management Board (PMB) or the TB accurately and correctly has a monetary effect as well. KPMG determined that if TB submissions for costing were submitted at a higher quality, then the submissions would be validated more quickly. The value of this time equated to $3.2 to $5.4 million a year over a ten year period.[13] A

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[10] David Perry, *2015 Status Report on Major Defence Equipment Procurements,* (Canadian Global Affairs Institute, Calgary, December 2015), 15.

[11] KPMG, *Defence Renewal Change Management Services: Project Approval Process Renewal 2016.* Vol 1, (Ottawa, 2016), 56.

[12] Department of National Defence, *Strong, Secure, Engaged: Canada's Defence Policy*, (Ottawa: Canada 2017), 45.

[13] KPMG, *Defence Renewal Change Management Services: Project Approval Process Renewal 2016.* Vol 1, (Ottawa, 2016), 96.

similar type of savings could be realized by reducing the amount of time spent drafting documentation or having to resubmit incomplete or inaccurate documentation.

Resource Management and Training

10. A new CID site would also act as a repository of resources for PD's. As they are drawn from across the forces, PD's are rarely provided with formal training in project management and their experience is normally at the tactical level vice the operational and strategic. In order to maximize the time available for new PD's to learn their responsibilities, develop proficiency and contribute meaningfully to the project, they must be provided with effective resources as soon as they arrive in the position. Currently, PD's can enroll in a short PAP course that covers the basics of project management. There are other more advanced courses offered by schools such as the Telford Business School at the University of Ottawa in partnership with DND. However, these courses are not available immediately to every PD prior to taking the position.[14] Access to resources that train, organize, and assist them in drafting project administration would immediately be of benefit.

11. In the example of time/value used above, estimating project costs correctly translated into significant savings. However, there is a severe lack of formal training on how the process is accurately accomplished. The PAPR project has established a resource cell to assist in developing accurate costing but its role is to act as a pooled resource of experienced costing experts, not to formally train others. PD's will still be required to do much of the cost estimate

[14] ibid, 49.

documentation themselves.[15] An improved CID can be a portal to facilitate on-line and class-based training for new PD's and will connect them to the source documents they need. Establishing experienced mentoring opportunities for junior PD's could be facilitated as well as a schedule for in house seminars for professional development. A single portal is necessary for these activities as PD's work across the elements and for different organizations. This training and access to resources permits more time to be spent on the project itself, rather than learning by error. KPMG estimated that savings incurred in efficiency due to improvements in training PD's could amount to $94 million over 10 years, more than enough to cover the costs associated with the education.[16]

Analysis

12. Both of the above requirements for a replacement to the CID, standardization and education, enable the DND to capitalize on new technology to achieve effects. A third pillar derives from the ability to analyze and view the data that exists within the system. By standardizing the means in which data is entered into the system, the data becomes "minable" by BI enabled applications. BI technologies are designed to interpret big data in new ways that manual analysis cannot. Through a user interface, the applications can manipulate the data to include reporting, data and process analysis, performance management and predictive analytics. A properly designed CID would be a mixture of structured (formatted) and unstructured (customized text entries specific to each project) data that BI tools are designed to interact with. The process would mine the data and transform it into information for more effective strategic,

[15] Department of National Defence, *Project Approval Process Renewal MND Conditional Approval Process,* (National Defence Headquarters: file 7000-2 (DPAP) 2017), annex B-1.

[16] KPMG, *Defence Renewal Change Management Services: Project Approval Process Renewal 2016.* Vol 1, (Ottawa, 2016), 89.

and operational insights, and decision-making purposes to yield real business benefits.[17] The advances in business intelligence and data-driven decision making provide "off the shelf" access to these tools inexpensively and with a user friendly design.

13. By managing the input of all project data through the standardization discussed above, a suite of tools can be used to look across projects to identify synchronicity, duplication of effort, or interdependencies between projects. Furthermore, a BI powered CID could also be linked to other enterprise DND systems such as CIPPR, SharePoint, and the Defence Resource Management System (DRMIS).[18] This would enable projects and government to obtain up-to-date visibility on project status, budget expenditure, and documentation which could all be analyzed to provide transparency and insight.

14. By enabling access to a better suite of technological applications, project personnel and senior management boards will be more equipped to prioritize projects under development and new projects vying for resources. One of the key deficiencies noted from the analysis of defence procurement is that the there is little high-level prioritization of projects leading to waste, duplication and inefficiencies.[19] SRB or PMB committee members who inform prioritization of projects cannot be expected to have enough knowledge on every project across the department and their interdependencies to be able to make informed decisions. The CIPPR program is intended to assist in those decisions, however owing to the inaccuracy and incompleteness of its

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[17] Lian Duan and Li Da Xu, *Business Intelligence for Enterprise Systems: A Survey.* (IEEE Transaction on Industrial Informatics, vol. 8, no. 3. August, 2012), 680.

[18] KPMG, *Defence Renewal Change Management Services: Project Approval Process Renewal 2016.* Vol 2, (Ottawa, 2016), 80.

[19] David Perry, *Putting the Armed Back in the Canadian Armed Forces: Improving Defence Procurement in Canada,* (CDA Institute, 2015), 8.

data sources; it is unable to provide proper insight. A BI enabled CID would be able to look across the entire spectrum of DND projects and provide better data driven decision making tools to senior levels.

System of Record

15. The last major improvement achieved by replacing the CID is enabling it to act as a data repository for all project information. While that is the CIDs current role, it lacks the intelligence to manage workflow documentation and be openly transparent to users. The current CID acts more as a library for document storage that is accessible to anyone on the DWAN.[20] A proper system of record should be capable of determining if documents or required meetings are out of date, overdue or missing entirely and be able to prompt the appropriate personnel to rectify the issue. For instance, SRB meetings for projects normally occur on an annual basis. An integrated, intelligent system will know to expect a meeting to be scheduled within 12 months of the last one. It will prompt the PD for the requirement of a meeting, assist in identifying the key personnel, distribute required pre-meeting documentation and then ensure that the minutes of the meetings and record of decisions are properly completed. All of this is organized and distributed from one trusted source with a permanent record of the transactions. This is especially important given the frequent transfers of PD's in and out of projects. These and other functions could be repeated for all project activity. This is the type of granularity necessary for a true system of record to function and drive greater accountability and transparency.

[20] KPMG, *Defence Renewal Change Management Services: Project Approval Process Renewal 2016.* Vol 2, (Ottawa, 2016), 80.

Conclusion

16. The PAPR initiative has already demonstrated improved efficiencies through its streamlined expenditure authorization process for projects in the definition and implementation stages. This is essential for the department because a more efficient process will be required to manage the increased funding established under SSE.[21] However, the first stages of most projects, identification and options analysis are when the greatest savings in time and money can be achieved. Efficiencies achieved in these stages can reduce the time necessary to reach the definition stage and ultimately deliver the capability. The best means to achieve greater efficiency at these stages is by providing a new, technologically enabled replacement for the CID. A new integrated system as described here, would deliver departmental wide standardization of project documentation resulting in higher quality administration produced in less time. As demonstrated above, efficient, high quality administration results in significant monetary savings. A new system would also act as a management and training tool to the Project Directors who are essential to getting projects into the investment plan. By enabling the system with a suite of BI applications, more in depth analysis of the department's projects is feasible and greater transparency and knowledge is achieved. Lastly, a new system would act as an official system of record for the DND, enabling all of the above functions.

[21] Department of National Defence, *Project Approval Process Renewal MND Conditional Approval Process,* (National Defence Headquarters: file 7000-2 (DPAP) 2017), 4.

Recommendations

17. In order to capitalize on the momentum created by PAPR and be prepared to manage the increased capacity expected from SSE by 2026, it is recommended that a team be immediately established under an experienced PD. This team should be funded to engage contractors and industry to source potential commercial off the shelf technologies. This will provide a more cost effective and timely solution to designing a new CID. The sooner the above deficiencies are rectified, the sooner the efficiencies can be realized and the better prepared the department will be for the challenges of SSE.

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