Canadian Space Agency | Agence spatiale canadienne

PROJECT MANAGEMENT FRAMEWORK AUDIT

AUDIT REPORT

Project # 13/14 01-03

Prepared by
Audit and Evaluation Directorate

MARS 2014

Canada

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1.0 SUMMARY

1.1 Objective of the audit

The purpose of this audit project is to determine whether the project management framework and practices enable the Canadian Space Agency (CSA) to comply with the requirements of the Project Management Policy (2009) of the Treasury Board of Canada (TB).

1.2 Opinion of the audit

In our opinion, the project management framework and practices of the Canadian Space Agency have certain deficiencies which represent an important issue that requires special attention from management.

1.3 Statement of assurance

As Chief Audit Executive, I am of the opinion that sufficient and appropriate audit procedures were followed and that audit evidence was collected to support the accuracy of the opinion provided in this report. This opinion is based on a comparison of the conditions as they existed at the time with pre-established audit criteria that were agreed to by management. The opinion only applies to the entity examined. The audit evidence was collected in accordance with the policy, directives and standards of the Treasury Board with respect to internal auditing. The procedures followed are in accordance with the professional standards of the Institute of Internal Auditors. The evidence gathered is sufficient to convince senior management of the merits of the opinion resulting from the internal audit.

1.4 Summary of recommendations

In January 2013, the CSA adopted a new project management policy (PMP). It is currently developing a new governance structure and a review of project management practices. However, the audit did identify opportunities for improvement that led us to formulate recommendations aimed at strengthening the CSA's project management framework.

The audit revealed that CSA's 2013 PMP stipulates that projects with a monetary value of less than 1 million dollars are not subject to it. This exclusion does not comply with the definition of projects in the TB's 2009 PMP. Also, the roles and responsibilities of the various stakeholders are not all clearly identified, and the terms of reference and existing documents for communicating these same roles are still awaiting formal approval by management.

Although common tools are used in a consistent manner for the planning, management and monitoring of space projects (which are complex and risky), the tools used for managing non-space projects vary significantly from one project to another. The audit showed that the processes and controls for project management and monitoring are not formally documented. Although the cost of human resources is estimated and recorded in the case of space projects,

this is not the case for non-space projects. A number of tools and documents available on the CSA's intranet website are outdated, and/or the associated hyperlinks no longer work. The CSA does not have a clear process for the development, approval and communication of project management directives and tools. The CSA has no formal directives on the processes of critical review (challenge) and the presentation of various cost options to senior management.

The deficiencies that we identified lead us to formulate the following three recommendations:

1. It is recommended that the CSA modify its *Project Management Policy (PMP)* to include:
   a. a new definition of projects that is aligned with the TB's PMP and which clearly reflects the types of projects that are subject to the CSA's PMP;
   b. a description of the roles and responsibilities of the various intervening parties based on the new governance structure that is currently under development.

2. It is recommended that the CSA develop, communicate and implement detailed directives and management tools adapted to the level of complexity and risk of projects, including a methodology for cost estimating and accounting in order to ensure that the cost of human resources is estimated and entered into the accounts for all projects.

3. It is recommended that the CSA develop a formal monitoring mechanism for all of its projects according to specific pre-determined criteria, including a well documented process for the critical review of costs and options before each phase of project approval.

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Signature of the Chief Audit Executive

Member of the audit team

Mathieu Farley, CPA Auditor, CA, CIA, CISA Robert Frappier, CPA Auditor, CA Claude Rivard, CPA, CA

2.0 AUDIT REPORT

2.1 Context and risk

The CSA is mandated to "promote the peaceful use and development of space, advise and advance the knowledge of space through science, and ensure that space science and technology provide social and economic benefits for Canadians".

The CSA achieves this mandate in collaboration with the private sector, academia, the agencies of the Government of Canada (GC) and other space agencies and international organizations.

The CSA's budget for fiscal year 2013-14 was 489 million dollars, and it has about 660 employees. Nearly 90% of the employees work at the John H. Chapman Centre, the CSA's headquarters located in St. Hubert, Quebec. The other employees work in Ottawa, at the David-Florida Laboratory, in the Government Liaison Office as well as in Houston, Washington and Paris. A majority of the activities undertaken by the CSA include the development of new technologies. These projects can vary significantly in terms of cost, nature or the level of complexity and risk.

The projects are managed by the following senior managements:

1. *Use of Space* manages the RADARSAT Constellation Mission (RCM) project and the micro satellite projects such as M3MSat.
2. *Space Exploration* is an active partner in the International Space Station (ISS), promotes the development of advanced scientific instruments such as the James Webb Space Telescope (JWST) and ISS Life Sciences Microflow.
3. *Space Science and Technology* manages projects related to space simulation facilities and the equipment of the David Florida Laboratory (DFL) in Ottawa, such as the purchase of new TRAPS – NG laboratory equipment.
4. *Corporate Services* manages projects not specifically related to space missions:
    - infrastructure projects such as the Exploration Storage Facility, Rover Indoor Workspace/Rover Garage projects are managed by the *Security and Facilities Directorate*
    - information technology projects such as the Victoire and SIGS projects are managed by *Information Management and Information Technologies*.

Since the adoption of a set of policies and directives by TB in 2009 on investment planning and more particularly on project management, the departments and agencies of the Federal Government have an obligation to demonstrate that they have implemented adequate systems, processes and controls for the management of projects by limiting the risks to stakeholders and taxpayers. During 2012-13, the CSA approved and updated its *Project Management Policy (PMP)* in order to harmonize its practices with TB policies. The 2013-14

Report on Plans and Priorities indicated that the CSA would implement a new method of project management arising from this same PMP by the end of 2013-14.

This audit project is part of the triennial audit plan based on the risks of the CSA for the years 2013-14 to 2015-16 which was approved by the Audit Committee. This audit is justified by the importance of the project management activities within the CSA. Deficiencies had also already been observed during an audit carried out in 2007. However, certain risks still persist due to delays in the implementation of the action plan developed in response to the recommendations of the report.

In 2013, in the self-assessment of its Organizational Project Management Capacity Assessment (OPMCA), the CSA awarded itself a rating of 1: *"Limited or non-existent capacity".* This self-assessment is subject to approval by TB at the same time as approval of the investment plan. Consequently, CSA's authorization power would be limited to projects for which the Project Complexity and Risk Assessment (PCRA) would be less than or equal to 1. The result of this self-assessment confirms the need for the CSA to improve its project management framework and practices.

2.2 Objective, scope and approach of the audit

Objective

The purpose of this audit project is to determine whether the project management framework and practices enable the Canadian Space Agency (CSA) to comply with the requirements of the *Project Management Policy* (2009) of the Treasury Board of Canada (TB).

Scope

The internal audit project focused on the project management framework and processes in place for all the projects that had activities during the fiscal years 2011, 2012 and 2013. The audit considered the phases of projects 0 to D as defined in the CSA's PMP:

- Pre-project phase (sub-phase 0 of the PMP): Preliminary identification work on the mission requirements and concepts, project charter, feasibility studies, risk analysis, estimation of costs and profitability analysis, project brief, submission to the TB, continuous monitoring and decision-making.
- Project phase (sub-phases A,B,C of the PMP): Detailed work which consists of establishing a high level of precision on the mission requirements and concepts, project charter, project management plan, feasibility studies, risk analysis, estimation of costs and profitability analysis, submission to the TB, continuous monitoring and decision-making.
- Project phase (sub-phase D of the PMP): Project management activities during the phases of manufacture, integration, launching and commissioning of the equipment.

This also includes ongoing monitoring and decision-making as well as the end-of-phase and lessons learned reports.

Note: The activities related to the phase after completion of the PMP project (sub-phases E and F, i.e., the operation and disposal of the space equipment at the end of its useful life) were excluded from the scope of this audit.

Approach

The audit criteria were established based on the policies, standards and guidelines issued by the TB. The approach includes the selection of projects that were examined during the audit, including the steps of interviews, the review of planning, approval and project monitoring documentation.

Since the audit deals with all CSA project management activities, ten projects falling within the four Branches responsible for space and non-space projects were selected. The projects selected included various levels of complexity and risk, and the monetary value of the projects was between $600,000 and $1.1 billion. The life cycle of the projects reviewed is spread over several years during which the CSA's Project Management Policy and Tools have changed. Given the diverse nature of projects and the evolution of CSA requirements in the past, we concluded that the preparation of statistical tables measuring the level of compliance of project management practices with the CSA's policies in force at different periods in the past was not appropriate for the purposes of the present report.

The Terms of Reference, the objective of the audit, the audit criteria as well as the findings raised during the audit were validated with the audited entity which prepared a plan that included corrective actions to address the deficiencies identified.

2.3 Findings, recommendations and management responses

In order to determine whether the project management framework and practices enable the CSA to comply with the requirements of the Project Management Policy (2009) of the Treasury Board of Canada (TB), we expected to find the following items:

- A clear Policy and guidelines specific to the CSA in terms of project management.
- Documents describing the processes and controls required for each stage of the life of projects.
- Critical review and monitoring processes throughout the project life cycle.

2.3.1 Management framework

<table>
<tr><td colspan="3">Objective of the audit:
Determine whether the project management framework and practices enable the Canadian Space Agency (the CSA) to comply with the requirements of the Project Management Policy (2009) of the Treasury Board of Canada.</td></tr>
<tr><td rowspan="2">Finding</td><td>Criterion 1</td><td>The CSA has implemented a management and governance framework to manage and monitor projects during their entire life cycle in accordance with the policies and directives of the TB.</td></tr>
<tr><td>Condition</td><td>Roles and responsibilities
The governance as well as the roles and responsibilities relating to the management of CSA projects are described in the PMP adopted in 2013. The roles and responsibilities of those persons directly responsible for the planning and implementation of projects are well identified and communicated. However, the roles of different stakeholders providing consulting and support services for proper project management such as the Project Management Corporate Office (PMCO), and the Project Management Support Committee (PMSC) must be clarified and communicated.

<u>Project Management Corporate Office (PMCO)</u>

Though the PMCO was created in 2000, its role was only defined starting in 2013 in the PMP. On the other hand, the role played by the PMCO during the project life cycle is not clearly documented, and still remains not very well understood by managers.

According to the PMP, the Director of Governance, Planning, and Performance (GPP), the PMCO and the PMSC have similar responsibilities for the review and validation of project approval documents:

Director of GPP:
• "…Oversee the process of project approval of the CSA in coordination with the Project Management Corporate Office (PMCO)..."

PMCO:
• "…Will examine the documents related to the approval of projects, will coordinate the activities of the Project Management Support Committee and will support the formal reviews of costs and the schedule..."
• "…Will provide consultation and monitoring during all project phases to ensure that this policy and the PMM are implemented..."

PMSC:
• "…Will ensure that the documents related to the approval of</td></tr>
</table>

Objective of the audit: Determine whether the project management framework and practices enable the Canadian Space Agency (the CSA) to comply with the requirements of the *Project Management Policy* (2009) of the Treasury Board of Canada.		
		projects are reviewed and validated with the appropriate internal stakeholders ***and that the policies and standards of the TB / TBS and the CSA are complied with..."*** Certain responsibilities recur and overlap among different stakeholders, which is likely to add confusion among managers and thus create organizational inefficiencies. In 2011, the PMCO took the initiative of clarifying its role by creating a Charter for itself. To date, this charter has not yet been approved by CSA management. Several other documents developed by the PMCO to clarify the project approval process, the terms of reference of committees, and the governance structure specific to major projects are available on the CSA intranet site. However, the majority of these are not formally approved and dated. The CSA must ensure that: a. detailed directives are developed to clarify the roles and responsibilities of the stakeholders identified in the 2013 PMP. b. the documents that communicate these roles and responsibilities are approved in a timely manner. The CSA is currently proceeding with the modernisation of its governance structure. To date, the CSA has created and implemented new governance committees, approved a new definition that enables the classification of all projects into three classes according to their scope, and has developed a management framework specific to each of the three new project classes. **Linking of projects to priorities** The activities leading to the prioritization and the choice of existing and future projects are performed as part of the CSA's annual strategic planning process. Projects are approved by the Executive Committee on the basis of their individual merit, taking into account the priorities of the CSA, the government and the resources available. The alignment of individual projects with the priorities of the CSA and the Government of Canada (GC) is also shown in the Charter of Projects and the Project Briefs submitted during the approval process.

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		However, the CSA does not have an approved investment plan to demonstrate how the projects fit into the CSA's overall investment strategy and support the achievement of the CSA's objectives and those of the Canadian Government. Conversely, the CSA's PMP does not clearly define the types of investments that will be managed as projects. The CSA's Integrated Programs and Planning Management is currently developing the investment plan. The CSA must clarify the definition of the activities which constitute a project, thus allowing it to identify whether certain investments under the plan will be managed as projects. The CSA is currently proceeding with the modernisation of its governance structure. To date, the CSA has, among other things, created and implemented the *Space Capability and Requirements Review Board* (SCRRB). This Committee includes members from other departments, and its role is to align the activities of CSA with the objectives of the Canadian Government. **Management tools and directives** The project approval documents described in the CSA's 2013 PMP were developed to better meet the needs of the management of projects that are more complex and risky such as space projects. The management tools developed by the PMCO and the project teams to prepare the schedules, the estimated costs, the risk assessment and the project management plan are also adapted to space projects and used in a uniform manner within the CSA. The situation differs with non-space projects, (i.e. infrastructure, information technology and at the David Florida Laboratory) where management practices and tools are not strictly applied. However, there is no clear directive which specifies the operational framework and tools to use at each stage of the project life cycle. We observed that on the one hand, the management tools available for all types of CSA projects are not formally approved, and that on the other hand, the tools developed to manage space projects are not suitable for the management of other, less complex and less risky projects. In many cases, it is difficult to ensure that the version of the documents available on the intranet is not only the most up-to-date one, but also the formally approved one.

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		The CSA does not have a clear process for the development, approval and communication of project management directives and tools. The CSA's project management intranet site must be updated in order to be useful to project managers. **"Project" definition** The former CSA project management policy (2005) clearly described the approval levels required for all projects, including those of less than 1 million dollars (i.e. the majority of non-space projects). However, the CSA's new PMP states that projects that have a value of less than 1 million dollars are not subject to it, and that the preparation of documents related to the approval of these projects is optional. Now, this exclusion does not meet the project definition of the TB's 2009 Project *Management Policy* whereby a project is defined by a series of activities that has a beginning and an end, which must produce determined outputs and accurate results according to a clearly defined schedule and resources plan. An investment or a series of activities can't be removed from the project management process on the basis of a monetary threshold. The CSA's PMP must be revised in order to comply with TB policies. The impact of the deficiencies related to governance and the lack of consistency in project management practices were clearly identified in 2013 in the CSA's *Organizational Project Management Capacity Assessment* (OPMCA) carried out by the CSA. The framework and management practices for projects of less than 1 million dollars were considered in the context of this assessment, and the CSA evaluated itself as having a "limited or non-existent capacity" to manage projects (rating of 1). With an OPMCA rating of 1, the CSA's authorization power would be limited to projects whose Project Complexity and Risk Assessment (PCRA) would be less than or equal to 1.
	Cause	A) In general, the CSA has not invested the necessary resources to ensure that its project management practices allow it to comply with the TB's PMP. For example, there was no consultation process to arrive at a consensus on the common tools and practices to be used. Also, the process for the approval and communication of documents and management tools was not

<table>
<tr><td colspan="4">Objective of the audit:
Determine whether the project management framework and practices enable the Canadian Space Agency (the CSA) to comply with the requirements of the Project Management Policy (2009) of the Treasury Board of Canada.</td></tr>
<tr><td rowspan="2"></td><td></td><td colspan="2">effective, and project managers were not aware of the impact of their projects on the OPMCA.
B) The CSA’s 2013 project management policy has the following deficiencies:
- Lack of clarity and superimposition in the roles and responsibilities of certain stakeholders.
- Ambiguity with respect to what should be considered a "Project" for the CSA and for the assessment of the CSA’s capacity by the TB Secretariat.
- Lack of rigour and consistency in the use of management practices and tools for projects under 1 million dollars.
C) Lack of directives and of project management tools that are approved, communicated, and that support the CSA’s PMP.</td></tr>
<tr><td>Effect</td><td colspan="2">A) Confusion and organizational inefficiency in the performance of various functions, among others, for the PMCO.
B) Lack of consistency and rigour in the application of non-space project management methods.
C) Low score in the CSA’s Organizational Project Management Capacity Assessment (OPMCA).</td></tr>
<tr><td>Recommendation</td><td colspan="3">1. It is recommended that the CSA modify its Project Management Policy (PMP) to include:
a. a new definition of projects that is aligned with the TB’s PMP and which clearly reflects the types of projects that are subject to the CSA's PMP;
b. a description of the roles and responsibilities of the various stakeholders based on the new governance structure that has just been developed.</td></tr>
<tr><td rowspan="2">Responsibility identified</td><td>Organization</td><td colspan="2">Programs and Integrated Planning Directorate</td></tr>
<tr><td>Function</td><td colspan="2">Director General</td></tr>
<tr><td>Management reaction</td><td></td><td colspan="2">1. Agree</td></tr>
<tr><td rowspan="2">Management action plan</td><td colspan="2">Details of the action plan</td><td>Deadlines</td></tr>
<tr><td colspan="2">1. The Policy for the Management of Projects will be updated :
a. A new definition of “Project” and guidelines on its application was approved by the President, upon recommendation by the Executive Committee on February 5, 2014. The definition is effective on the date it was approved.
b. The “Handbook” for project management has been written and is proceeding through reviews. It contains the definition</td><td>Updated and approved by December 2014.</td></tr>
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	of roles and responsibilities. The descriptions of roles and responsibilities will also be reflected in the updated Policy.	

2.3.2 Project management process and mechanisms.

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Finding	Criterion	The CSA performs effective project management using the processes, mechanisms and controls in place throughout the stages of project management.
	Conditions	**CSA project management cycle** The CSA defines the life cycle of projects in 7 phases which are outlined in the CSA's PMP: <u>Pre-project</u>: ➢ **Phase 0, Mission requirements:** Study of concepts, feasibility studies, definition of mission requirements. <u>Project:</u> ➢ **Phase A, Requirements related to systems:** Define system-related requirements and plan subsequent project phases. ➢ **Phase B, Preliminary design:** Establish the preliminary definition according to the technical requirements developed in phase A. ➢ **Phase C, Detailed design:** Complete the preliminary design and establish the reference for implementation. ➢ **Phase D, Implementation:** Manufacture, assembly, integration, testing, launch and commissioning. <u>Post-project:</u> ➢ **Phase E, Operation:** Includes day-to-day operation and maintenance of the assets. ➢ **Phase F, Retirement from service:** Includes the activities of decommissioning for the disposal of assets at the end of life. **Analysis of requirements and options** The CSA manages two broad categories of projects: space projects

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		and others. Space projects include the design and construction of innovative equipment or technologies that will be used in space. Non-space projects are related to the management of infrastructures, information technology and asset acquisition activities. Preliminary requirements for space projects are first identified in collaboration with the CSA's partners (i.e. other departments of the Government of Canada (GC), international partners such as NASA). Requirements are described in a summary manner in the Project Approval Document (PAD)/the Project Charter and the Project Brief, and are used to justify authorization requests for the various project stages. The needs, concepts and preliminary requirements are established during project phases 0 and A, and are documented in the "Basic Mission Concepts", "Requirements Related to the Mission" and "Requirements Related to Systems" documents. The requirements may evolve during the design and validation phases (phases B and C), or as a result of new requests or requirements by the partners. We observed that the analyses carried out, and the method of presentation of the requirements (i.e., PAD and Project Briefs) help demonstrate the alignment of projects with CSA and GC priorities and support decision-making by the signing authorities. Non-space projects are managed by the Security and Facilities Group and the Information Management and Information Technology Group. These two groups fall within the CSA's Corporate Services Branch. The Space Science and Technology Branch manages projects related to space simulation facilities and to the acquisition of equipment at the David Florida Laboratory (DFL) in Ottawa. The documentation supporting the needs analysis varies according to the groups. For infrastructure work, the Security and Facilities group prepares a list for approval in order of priority following an evaluation of the state of capital assets. The list includes the estimated costs of each of the items of work to be done. These are approved through the annual allocation of financial resources process, and funds are earmarked in the CSA's budget. At the time of the establishment of the list, it is not yet determined if each of the infrastructure works will be considered or not considered as a project.

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		It is same for the information technology work, where the Information Management and Information Technology group prepares an analysis of needs and feasibility. In the case of a project at the David Florida Laboratory (DFL), the needs analysis consists of the preparation of the technical performance requirements of the required equipment. The authorisation to proceed with the acquisition of the new equipment was obtained from the EC during the annual process of strategic and financial planning, and the capital budget funds were reserved for this acquisition. In the selection of projects for our audit, the latest value recorded for the project in question had been set at $449,000 (value used for the OPMCA). However, the reserved funds of the capital budget in 2012-13 were 1,425 million dollars. No PAD or formal cost estimates were prepared, and no Executive Committee authorization was obtained for this project. We did not find any directive or procedure describing a uniform approach for analysing and documenting the requirements and options of non-space projects. **Risk management** The risk management of space projects consists of identifying, quantifying and managing the financial risks associated with the various projects. Corporate risks are identified and communicated via the PADs and the project briefs. Corporate risks are analysed by the PMCO. Project managers use a financial risk assessment matrix to evaluate the potential costs associated with four categories of space project risk: costs (C), schedule (S), technical performance (T) and programme (P). Each risk category usually includes several individual risks. Risk monitoring and mitigation measures are developed by the project team. The estimated cost of financial risks is included in the total estimated costs of the project under the risk heading. An estimate of total costs

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		and a summary of the level of risk by category are included in the PAD, the Project Brief, and in the TB submission, where applicable. The estimated cost of non-space projects generally contains a separate element of the contingency/risk cost. The amount estimated for this contingency is a fixed percentage, and is not supported and justified by a formal risk assessment. Though the use and content of the various risk matrices vary from one project to the next, the approach used for the assessment of risks as such is identical for all space projects reviewed during the audit. However, the CSA has not developed a formal procedure for identifying, assessing and managing the risks associated with non-space projects. Since 2010-11, *Project Complexity and Risk Assessments* (PCRAs) have been carried out on all the space projects that we reviewed. During the interviews, we learned that this analysis was made at the request of the PMCO. This work enabled managers to confirm the project risk levels and to familiarize themselves with the TB's risk assessment tools. **Estimation of resources** The source of funding for all projects is determined by the Finance Group during the initial project planning phase as part of the CSA's financial resources management. The source of funds is explained in the PAD, the presentations to the Executive Committee, the project brief as well as in the Submission to the TB, where necessary. As a first step, the availability and the cost of human resources (HR) required for the management of space projects are evaluated during the initial estimation of the costs. The project manager is responsible for preparing the estimate and for including the human resources cost directly attributable to the project (project manager, project engineers, etc.) and the cost of the Directorate - Space Science and Technology directly involved in the project. The planning of human resource costs is carried out using a tool called the Resource

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		Allocation Matrix (RAM). The cost of the resources allocated to the management of the program (e.g.:Director, DG) and to support services (i.e. financial operations, procurement, Information Technology), is not included in the initial estimate. Planning of the use of human resources for each Branch for the whole of a fiscal year is carried out using a tool called eRAM. This tool ensures that the intended use of HR is equivalent to the available resources. The actual cost of salaries is charged to the projects using the CSA's financial system based on the allocation specified in RAM for each project. The actual project costs are monitored, and the cost estimates are updated regularly throughout the project life cycle. However, the cost of human resources related to non-space projects is not always included in the estimate, and is never included in the actual costs. This practice does not allow the CSA to analyze and compare non-space project costs with space projects on a systematic basis: • In the case of an information technology project, the cost of human resources was part of the estimated costs, but no salary cost was charged to the project. • In the case of a DFL project, of a GI/TI project, and for all the infrastructure projects reviewed, no human resource costs were estimated and charged to the project. • For infrastructure projects established on the basis of costs reimbursable by another branch only, a charge of 5% is added to the direct costs of the project as an administration fee. • A number of the projects reviewed had an estimated value greater than 1 million dollars. The CSA has not developed a directive on the treatment of the cost of human resources for non-space projects. The treatment of the costs of human resources must be uniform for

Objective of the audit: Determine whether the project management framework and practices enable the Canadian Space Agency (the CSA) to comply with the requirements of the *Project Management Policy* (2009) of the Treasury Board of Canada.		
		projects of the same scope in order to facilitate decision making. The CSA's Executive Committee sometimes has recourse to a Cost Review Team to conduct a critical review of the cost estimates for projects considered to be more risky and complex. In October 2009, the costs of a *Major Crown Project* (MCP) were analyzed by a Cost Review Team at the request of the Executive Committee. A formal presentation of this critical review and the various cost scenarios was made to the Executive Committee for this MCP. However, in the case of another complex and risky project, the manager confirmed to us that a critical review had taken place before he joined the project, but that he did not know if a formal presentation had been made to the EC on this subject. No documentation to this effect was found in the dossier. The CSA has no formal directives on the review of cost estimates, the analysis of options and the presentation of these results to senior management. The critical review of estimates and the analysis of the options is an essential control for improving both the quality of the estimates as well as that of the risk assessments. **Management tools:** Our audit showed that the management processes and tools used in the CSA are developed to better meet the needs of more complex and riskier project management like that of space projects. In general, space project managers share the processes and tools designed for this type of project on an informal basis. We also noted that these tools are used in space projects in a uniform manner within the CSA. With respect to the management of non-space projects, the processes and tools used vary significantly from one project to another. The infrastructure projects and the David Florida Laboratory project included in our sample were approved without any PAD having been prepared. Now this requirement was clearly indicated in the CSA's *Project Management Policy* (2005) applicable at this time. Some managers are of the opinion that the approval steps and space project management tools are too complex for non-space projects.

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		The CSA should develop and communicate clear directives which are adapted to the nature and the degree of complexity and risk of projects. The development of directives that are adapted to non-space projects, would promote the uniform management of projects and the optimal use of resources. Reports and operating reports are prepared during the life cycle of space projects on a regular basis. These reports are prepared for each project and present the project status report using indicators common to the CSA. They are based on the four categories of risk assessed during the project planning phase (costs, deadlines, technical and programmatic elements). Although the templates used vary somewhat for space projects, the content and information presented on the project is rather uniform. The project reports are reviewed by the Executive Director of the sector in question, and the salient points are discussed at the CSA's Executive Committee meetings. The CSA monitors projects approved by the TB or the Executive Committee using an EXCEL table that presents the highlights of these projects for each predefined performance indicator (for example: approval dates, initial and amended budgets, additional authorities to be obtained, total estimated costs, actual costs and level of advancement of the project). There are no follow-up reports or communication provided to the Executive Committee on non-space projects. The current monitoring process does not allow the CSA to assess all of its projects, including non-space projects, according to common criteria. The project monitoring process should be improved in order to allow the CSA to better monitor the progress of all types of projects, and to implement corrective measures when required. The process should enable close attention to be paid to the quality of project management likely to be evaluated during the CSA's next *Organizational Project Management Capacity Assessment* (OPMCA) exercise.
	Cause	In general, the deficiencies identified at the governance level cause deficiencies at the project operational management level. For example, the perception of some managers that non-space investments do not have to be managed as projects is the result of the inadequate definition of projects in the current PMP, and the

<table>
<tr><td colspan="4">Objective of the audit:
Determine whether the project management framework and practices enable the Canadian Space Agency (the CSA) to comply with the requirements of the Project Management Policy (2009) of the Treasury Board of Canada.</td></tr>
<tr><td></td><td></td><td colspan="2">absence of a formal monitoring process for all projects.
A) There are no formal procedures describing the steps and key controls of the management process throughout the project life cycle. The management tools are not suitable for less complex and less risky (non-space) projects.
B) The CSA has no formal directives on either the processes of critical review or on the presentation of various cost options to senior management.
C) The current monitoring process does not allow the CSA to assess all of its projects according to common criteria.</td></tr>
<tr><td></td><td>Effect</td><td colspan="2">A) A lack of consistency in the establishment of needs and options, in HR cost estimation methods, and therefore in the evaluation of projects as a whole.
Non-conformities observed at the approval level for a number of non-space projects.
B) The cost estimates of projects may be incomplete, thus leading to significant cost overruns in the absence of a solid critical review process.
C) The assessment of the health of projects being incomplete, the risk of not detecting poor performance is increased for projects targeted by the OPMCA.</td></tr>
<tr><td>Recommendation</td><td colspan="3">2. It is recommended that the CSA develop, communicate and implement detailed guidelines and management tools adapted to the level of complexity and risk of projects, including a methodology for cost estimating and accounting in order to ensure that the cost of human resources is estimated and entered into the accounts for all projects.

3. It is recommended that the CSA develop a formal monitoring mechanism for all of its projects according to specific pre-determined criteria, including a well documented process for the critical review of costs and options before each phase of project approval.</td></tr>
<tr><td rowspan="2">Responsibility identified</td><td>Organization</td><td colspan="2">Programs and Integrated Planning Directorate</td></tr>
<tr><td>Function</td><td colspan="2">Director General</td></tr>
<tr><td>Management reaction</td><td></td><td colspan="2">1. Agree
2. Agree</td></tr>
<tr><td rowspan="2">Management action plan</td><td colspan="2">Details of the action plan</td><td>Deadlines</td></tr>
<tr><td colspan="2">1. The CSA Project Management Framework, which was developed in consultation with representatives from across</td><td>Implemented by December</td></tr>
</table>

Objective of the audit: Determine whether the project management framework and practices enable the Canadian Space Agency (the CSA) to comply with the requirements of the *Project Management Policy* (2009) of the Treasury Board of Canada.		
	the CSA, is designed to address projects based on their risk and complexity regardless of their origins (space or non-space). The tools and processes will have sufficient flexibility to allow tailoring as appropriate to the project, regardless of the nature of the project. This Framework was approved by the President, upon the recommendation of the Executive Committee on February 5, 2014. The CPMO is in the process of implementation. 2. The CSA Project Management Framework is based on the Stage-Gate™ model which, among other things, requires a project to proceed through a series of decision gates at prescribed points during its lifecycle. Prior to each project gate, the business case must be updated and one of the key steps in the business case is to update all the estimates. The Director General who is accountable for the business case will be required to consult with the CFO on the financial accuracy of the business case. CFO attestation will also be required at each gate.	2014.