

# **THE CANADIAN SPACE AGENCY**

## **2014–15 Estimates**

REPORT ON PLANS AND PRIORITIES

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**The Honourable James Moore**  
**Minister of Industry**

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**PREFACE**

**2014–15  
ESTIMATES**

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PART III – Departmental Expenditure Plans: Reports on Plans and Priorities

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**Purpose**

Reports on Plans and Priorities (RPP) are individual expenditure plans for each department and agency. These reports provide increased levels of detail over a three-year period on an organization's main priorities by strategic outcome, program and planned/expected results, including links to related resource requirements presented in the Main Estimates. In conjunction with the Main Estimates, Reports on Plans and Priorities serve to inform members of Parliament on planned expenditures of departments and agencies, and support Parliament's consideration of supply bills. The RPPs are typically tabled soon after the Main Estimates by the President of the Treasury Board.

**Estimates Documents**

The Estimates are comprised of three parts:

Part I - Government Expenditure Plan - provides an overview of the Government's requirements and changes in estimated expenditures from previous fiscal years.

Part II - Main Estimates - supports the appropriation acts with detailed information on the estimated spending and authorities being sought by each federal organization requesting appropriations.

In accordance with Standing Orders of the House of Commons, Parts I and II must be tabled on or before March 1.

Part III - Departmental Expenditure Plans - consists of two components:

- Report on Plans and Priorities (RPP)
- Departmental Performance Report (DPR)

DPRs are individual department and agency accounts of results achieved against planned performance expectations as set out in respective RPPs.

The DPRs for the most recently completed fiscal year are tabled in the fall by the President of the Treasury Board.

Supplementary Estimates support Appropriation Acts presented later in the fiscal year. Supplementary Estimates present information on spending requirements that were either not sufficiently developed in time for inclusion in the Main Estimates or have subsequently been refined to account for developments in particular programs and services. Supplementary Estimates also provide information on changes to expenditure forecasts of major statutory items as well as on such items as: transfers of funds between votes; debt deletion; loan guarantees; and new or increased grants.

For more information on the Estimates, please consult the Treasury Board Secretariat website: <http://www.tbs-sct.gc.ca/ems-sgd/esp-pbc/esp-pbc-eng.asp>

### **Links to the Estimates**

As shown above, RPPs make up part of the Part III of the Estimates documents. Whereas Part II emphasizes the financial aspect of the Estimates, Part III focuses on financial and non-financial performance information, both from a planning and priorities standpoint (RPP), and an achievements and results perspective (DPR).

The Management Resources and Results Structure (MRRS) establishes a structure for display of financial information in the Estimates and reporting to Parliament via RPPs and DPRs. When displaying planned spending, RPPs rely on the Estimates as a basic source of financial information.

Main Estimates expenditure figures are based on the Annual Reference Level Update which is prepared in the fall. In comparison, planned spending found in RPPs includes the Estimates as well as any other amounts that have been approved through a Treasury Board submission up to February 1<sup>st</sup> (See Definitions section). This readjusting of the financial figures allows for a more up-to-date portrait of planned spending by program.

### **Changes to the presentation of the Report on Plans and Priorities**

Several changes have been made to the presentation of the RPP partially to respond to a number of requests – from the House of Commons Standing Committees on Public Accounts (PAC - [Report 15<sup>i</sup>](#)), in 2010; and on Government and Operations Estimates (OGGO - [Report 7<sup>ii</sup>](#)), in 2012 – to provide more detailed financial and non-financial performance information about programs within RPPs and DPRs, thus improving the ease of their study to support appropriations approval.

- In Section II, financial, human resources and performance information is now presented at the Program and Sub-program levels for more granularity.
- The report's general format and terminology have been reviewed for clarity and consistency purposes.
- Other efforts aimed at making the report more intuitive and focused on Estimates information were made to strengthen alignment with the Main Estimates.

## **How to read this document**

RPPs are divided into four sections:

### Section I: Organizational Expenditure Overview

This Organizational Expenditure Overview allows the reader to get a general glance at the organization. It provides a description of the organization's purpose, as well as basic financial and human resources information. This section opens with the new Organizational Profile, which displays general information about the department, including the names of the minister and the deputy head, the ministerial portfolio, the year the department was established, and the main legislative authorities. This subsection is followed by a new subsection entitled Organizational Context, which includes the *Raison d'être*, the Responsibilities, the Strategic Outcomes and Program Alignment Architecture, the Organizational Priorities and the Risk Analysis. This section ends with the Planned Expenditures, the Alignment to Government of Canada Outcomes, the Estimates by Votes and the Contribution to the Federal Sustainable Development Strategy. It should be noted that this section does not display any non-financial performance information related to programs (please see Section II).

### Section II: Analysis of Program(s) by Strategic Outcome(s)

This Section provides detailed financial and non-financial performance information for strategic outcomes, Programs and sub-programs. This section allows the reader to learn more about programs by reading their respective description and narrative entitled "Planning Highlights". This narrative speaks to key services or initiatives which support the plans and priorities presented in Section I; it also describes how performance information supports the department's strategic outcome or parent program.

### Section III: Supplementary Information

This section provides supporting information related to departmental plans and priorities. In this section, the reader will find future-oriented statement of operations and a link to supplementary information tables regarding transfer payments, as well as information related to the greening of government operations, internal audits and evaluations, horizontal initiatives, user fees, major crown and transformational projects, and up-front multi-year funding, where applicable to individual organizations. The reader will also find a link to the *Tax Expenditures and Evaluations Report*, produced annually by the Minister of Finance, which provides estimates and projections of the revenue impacts of federal tax measures designed to support the economic and social priorities of the Government of Canada.

### Section IV: Organizational Contact Information

In this last section, the reader will have access to organizational contact information.

## **Definitions**

### *Appropriation*

Any authority of Parliament to pay money out of the Consolidated Revenue Fund.

### *Budgetary Vs. Non-budgetary Expenditures*

Budgetary expenditures – operating and capital expenditures; transfer payments to other levels of government, organizations or individuals; and payments to crown corporations.

Non-budgetary expenditures – net outlays and receipts related to loans, investments and advances, which change the composition of the financial assets of the Government of Canada.

### *Expected Result*

An outcome that a program is designed to achieve.

### *Full-Time Equivalent (FTE)*

A measure of the extent to which an employee represents a full person-year charge against a departmental budget. FTEs are calculated as a ratio of assigned hours of work to scheduled hours of work. Scheduled hours of work are set out in collective agreements.

### *Government of Canada Outcomes*

A set of high-level objectives defined for the government as a whole.

### *Management Resources and Results Structure (MRRS)*

A common approach and structure to the collection, management and reporting of financial and non-financial performance information. An MRRS provides detailed information on all departmental programs (e.g.: program costs, program expected results and their associated targets, how they align to the government's priorities and intended outcomes, etc.) and establishes the same structure for both internal decision making and external accountability.

### *Planned Spending*

For the purpose of the RPP, planned spending refers to those amounts for which a Treasury Board (TB) submission approval has been received by no later than February 1, 2014. This cut-off date differs from the Main Estimates process. Therefore, planned spending may include amounts incremental to planned expenditure levels presented in the 2014–15 Main Estimates.

### *Program*

A group of related resource inputs and activities that are managed to meet specific needs and to achieve intended results, and that are treated as a budgetary unit.

*Program Alignment Architecture*

A structured inventory of a department's programs, where programs are arranged in a hierarchical manner to depict the logical relationship between each program and the Strategic Outcome(s) to which they contribute.

*Spending Areas*

Government of Canada categories of expenditures. There are four spending areas<sup>iii</sup> (social affairs, economic affairs, international affairs and government affairs) each comprised of three to five Government of Canada outcomes. (<http://www.tbs-sct.gc.ca/ppg-cpr/frame-cadre-eng.aspx>)

*Strategic Outcome*

A long-term and enduring benefit to Canadians that is linked to the department's mandate, vision, and core functions.

*Sunset Program*

A time-limited program that does not have on-going funding or policy authority. When the program is set to expire, a decision must be made as to whether to continue the program. (In the case of a renewal, the decision specifies the scope, funding level and duration).

*Whole-of-Government Framework*

A map of the financial and non-financial contributions of federal organizations receiving appropriations that aligns their Programs to a set of high level outcome areas defined for the government as a whole.





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## 2014-15 Report on Plans and Priorities

## MINISTER’S MESSAGE

Canada is poised to enjoy continued economic stability in 2014–15, with a focus on balanced budgets. The country’s strong consumer-driven marketplace, world-class research hubs, educated *and productive workforce*, strong financial institutions, and transparent and predictable regulatory environment are just a few of its many competitive advantages.

As Minister of Industry, I am pleased that the Industry Portfolio is building on these strengths by encouraging innovation, modernizing Canada’s marketplace policies, and effectively managing programs and services.



In further developing the federal Science, Technology and Innovation Strategy, the Industry Portfolio aims to strengthen the private sector’s participation in Canadian science and technology, knowledge and innovation. This year, small and medium-sized enterprises will also be better served by improved access to information, programs and services offered by Industry Canada, the portfolio partners and the Government of Canada.

A competitive and innovative space sector plays an important role in Canada’s economic growth, providing high-skill jobs, technologies and infrastructure for a knowledge economy. The Canadian Space Agency (CSA) will continue to work with the space industry to increase the sector’s competitiveness. Through its projects, the CSA is helping position the space industry to be a vital contributor to Canada’s interests. Canada’s continued participation in international space collaborations, such as the International Space Station, will sustain the country’s place as a sophisticated research and innovation leader and will provide a valuable advantage for Canadian firms on the global stage. In the wake of the Emerson Report, the Government of Canada has developed *Canada’s Space Policy Framework*, which will guide the CSA’s strategic activities and programs for years to come.

In support of the government’s efforts to return to fiscal balance, the Industry Portfolio will continue to ensure financial and human resources are managed responsibly and efficiently.

This year’s *Report on Plans and Priorities* defines our approach to supporting a competitive marketplace; facilitating advancements in science, technology and innovation, and their resulting economic and social benefits; and driving the competitiveness of Canadian businesses and communities. On behalf of the Industry Portfolio, I am confident we will meet our objectives and fulfill the promise of another successful year.

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The Honourable James Moore  
Minister of Industry



# SECTION 1: ORGANIZATIONAL EXPENDITURE OVERVIEW

## 1.1 ORGANIZATIONAL PROFILE

### CSA in brief in 2014–15

**Minister of Industry:**

The Honourable James Moore

**President:** General (Retired) Walter Natynczyk

**Full Time Equivalents (FTEs):** 643.6

**Budget:** \$462,447,174

**Headquarters:** St-Hubert, Quebec

**Partners:** Government of Canada organizations, Canadian university community, space industry, and international space agencies.

The Canadian Space Agency was established in 1989. Approximately 90% of its employees are working at the headquarters located at the John H. Chapman Space Centre, in St-Hubert, Quebec. The remaining personnel serve the Agency at the Government Liaison Office and the David Florida Laboratory in Ottawa, or in Houston, Washington or Paris. The President, General (Retired) Walter Natynczyk was nominated in August 2013 for a four-year term.

## 1.2 ORGANIZATIONAL CONTEXT

### 1.2.1 Raison d'être

The mandate of the Canadian Space Agency (CSA) is *"to promote the peaceful use and development of space, to advance the knowledge of space through science and to ensure that space science and technology provide social and economic benefits for Canadians"*.

### 1.2.2 Responsibilities and Governance

The founding legislation voted in 1990 attributed four main functions to the CSA:

- Assisting the Minister in the coordination of the space policies and programs;
- Planning and implementing programs and projects related to scientific or industrial space research and development, and application of space technology;
- Promoting the transfer and diffusion of space technology to and throughout Canadian industry; and,
- Encouraging commercial exploitation of space capabilities, technology, facilities and systems.

To learn more about the founding legislation and mandate of the CSA, go to: <http://www.asc-csa.gc.ca/eng/about/mission.asp>

Last December, the Minister of Industry, the Honourable James Moore, announced the Government of Canada's response to the space-related recommendations made in the 2012 Aerospace and Space Review, Volume 2 (*Reaching Higher: Canada's Interests and Future in Space*).

In response to recommendations regarding CSA's governance structure, mechanisms are being put in place to ensure that all pertinent partners and stakeholders are consulted in setting the Government's future priorities in space, and to provide clear oversight and accountability in its investments. A Space Advisory Council reporting to the President of the CSA will be established in 2014–15. Composed of external stakeholders, the Council will provide advice on the CSA's space program and will meet with the Minister of Industry on an annual basis to review the CSA's priorities. Also, a Deputy Minister Governance Committee for Space will be established to oversee all future major space projects to enhance coordination and oversight.

As the principal advisor on space-related matters to the Minister of Industry, the President is the CSA's Chief Executive Officer and ensures that the Minister is in a position to take and direct all actions required to fulfil the CSA's mandate and mission. It is also part of the President's responsibilities to provide strategic direction and day-to-day leadership to the CSA for public resource allocation, management and stewardship.

During the last quarter of 2013–14, two new boards were created to assist the President and, in turn the Minister, with their responsibilities. Both boards are chaired by the Vice President of the CSA with membership consisting of senior executives representing central agencies and federal departments and agencies involved in science-based activities. The overall mandate of these two boards is to oversee the whole-of-government prioritization, sequencing and rigorous program management of space asset development and utilization. The role of the Space Capability and Requirements Review Board (SCRRB) is to ensure that the CSA's program priorities are aligned with government/user priorities. Secondly, the SCRRB will assess whether proposed projects and technologies are adequate for the end-user communities. In a complementary role, the Space Program Management Board (SPMB) will ensure that projects are developed according to schedule; stay within allocated funding envelopes and remain relevant to the Canadian space program.

Internally, the President chairs the Executive Committee, a decision-making body responsible for the oversight of the strategic orientations, program priorities, major investments and their continuation. The members of the Executive Committee are the Vice President the Chief Financial Officer, four Directors General (Space Utilization, Space Exploration, Space Science and Technology, and Policy) and the Executive Director of Corporate Services. The President is also supported by an external Audit committee which provides objective advice and recommendations regarding the sufficiency, quality and results of the CSA's risk management, control and governance frameworks, accountability processes, and auditing systems.

### **1.2.3 Strategic Outcome and Program Alignment Architecture**

**1 Strategic Outcome:** Canada’s exploration of space, provision of space services and development of its space capacity meet the nation’s needs for scientific knowledge, innovation and information

**1.1 Program:** Space Data, Information and Services

**1.1.1 Sub-Program:** Earth Orbit Satellite Missions and Technology

1.1.1.1 **Sub-Sub-Program:** Earth Observation Missions

1.1.1.2 **Sub-Sub-Program:** Communications Missions

1.1.1.3 **Sub-Sub-Program:** Scientific Missions

**1.1.2 Sub-Program:** Ground Infrastructure

1.1.2.1 **Sub-Sub-Program:** Satellite Operations

1.1.2.2 **Sub-Sub-Program:** Data Handling

**1.1.3 Sub-Program:** Space Data, Imagery and Services  
Utilization Development

1.1.3.1 **Sub-Sub-Program:** Earth Observation Data and Imagery  
Utilization

1.1.3.2 **Sub-Sub-Program:** Communications Services Utilization

1.1.3.3 **Sub-Sub-Program:** Scientific Data Utilization

**1.2 Program:** Space Exploration

**1.2.1 Sub-Program:** International Space Station (ISS)

1.2.1.1 **Sub-Sub-Program:** International Space Station Assembly  
and Maintenance Operations

1.2.1.2 **Sub-Sub-Program:** International Space Station Utilization

**1.2.2 Sub-Program:** Exploration Missions and Technology

1.2.2.1 **Sub-Sub-Program:** Space Astronomy Missions

1.2.2.2 **Sub-Sub-Program:** Planetary Missions

1.2.2.3 **Sub-Sub-Program:** Advanced Exploration Technology  
Development

**1.2.3 Sub-Program:** Human Space Missions and Support

1.2.3.1 **Sub-Sub-Program:** Astronaut Training and Missions

1.2.3.2 **Sub-Sub-Program:** Operational Space Medicine

1.2.3.3 **Sub-Sub-Program:** Health and Life Sciences

- 1.3 Program: Future Canadian Space Capacity**
  - 1.3.1 Sub-Program: Space Expertise and Proficiency**
  - 1.3.2 Sub-Program: Space Innovation and Market Access**
    - 1.3.2.1 **Sub-Sub-Program: International Market Access**
    - 1.3.2.2 **Sub-Sub-Program: Enabling Technology Development**
  - 1.3.3 Sub-Program: Qualifying and Testing Services**
- 1.4 Program: Internal Services**
  - 1.4.1 Sub-Program: Governance and Management Support**
    - 1.4.1.1 **Sub-Sub-Program: Management and Oversight**
    - 1.4.1.2 **Sub-Sub-Program: Communications**
    - 1.4.1.3 **Sub-Sub-Program: Legal**
  - 1.4.2 Sub-Program: Resources Management Services**
    - 1.4.2.1 **Sub-Sub-Program: Human Resources Management**
    - 1.4.2.2 **Sub-Sub-Program: Financial Management**
    - 1.4.2.3 **Sub-Sub-Program: Information Management**
    - 1.4.2.4 **Sub-Sub-Program: Information Technology**
  - 1.4.3 Sub-Program: Asset Management Services**
    - 1.4.3.1 **Sub-Sub-Program: Real Property**
    - 1.4.3.2 **Sub-Sub-Program: Material**
    - 1.4.3.3 **Sub-Sub-Program: Acquisition**

Descriptions of Programs, Sub-Programs and Sub-Sub-Programs are in [Section 2](#).

The full description of Programs, Sub-Programs, and Sub-Sub-Programs can be taken from the Main Estimates available online at: <http://www.tbs-sct.gc.ca/est-pre/estime.asp>



### 1.2.4 Organizational Priorities

The CSA invests wisely to maintain its leadership in applying space to the ever increasing challenges of the global knowledge-based economy. The CSA consulted with senior executives of Government of Canada organizations, Canadian academia and industry, and heads of space agencies to arrive at the current vision. Canada, a country:

- where governments, academia, businesses and citizens have timely access to relevant, reliable and high-quality data, knowledge, information and services from a variety of space assets, both domestic and foreign;
- that takes advantage of its favourable northern location to become an international hub for space data reception;
- that uses the challenges of space exploration as a powerful driver for knowledge and innovation;
- that provides exciting business and job opportunities in leading-edge space science and technology sectors; and,
- that uses space to address its public policy objectives, global challenges and to take its place in the world.

At present, the CSA is going through a strategic transition in response to the Emerson Report: 2012 Aerospace and Space Review, Volume 2, *Reaching Higher: Canada's Interests and Future in Space*, that will result in a strategic plan with specific goals and objectives to guide investment decisions.

All CSA programs contribute to a single strategic outcome: *Canada's exploration of space, provision of space services and development of its space capacity meet the nation's needs for scientific knowledge, innovation and information.* Strategic guidance resulting from wide consultations has yielded the following priorities for each Program.

**Provide space data, information and services for Canadians:** The CSA will develop and help the utilization of space-based solutions and research data to assist Government of Canada organizations. The space solutions will contribute to the delivery of cost-effective programs and services related to key national priorities, such as sovereignty, defence, safety and security, resource management, environmental monitoring and the North.

**Foster knowledge and innovation through space exploration:** The CSA will support the development of valuable Canadian science, signature technologies and qualified astronauts to international space exploration endeavours. It will support the development of space technologies and knowledge with potential for terrestrial benefits mainly through the optimal utilization of the International Space Station (ISS) and the demonstration of advanced robotics technologies.

**Sustain and enhance future Canadian space capacity:** The CSA will attract, sustain and enhance the nation's critical mass of Canadian space specialists, will enhance know-how, and evolve space related facilities to preserve Canada's capability to deliver internationally renowned space assets for future missions, and secure Canada's strategic presence in space.

## Program – Space Data, Information and Services

### Contribution of the Program to the CSA Strategic Outcome

The contribution of this Program to the strategic outcome is expected to increase the use of space data, applications and information by government departments and agencies to better deliver their policy and programs and perform their operational responsibilities more effectively. This calls for a strong partnership between the CSA and other Government of Canada (GoC) organizations.

Priorities	Type
# 1 Serve Canada's national interests of security (particularly in the Arctic), maritime surveillance, disaster management, ecosystem monitoring, sovereignty, and prosperity by furthering the development of the RADARSAT Constellation Mission (RCM) through the Canadian space industry. Ground stations located in the Canadian Arctic are required to take full advantage of the RADARSAT Constellation Mission and to receive data from various Canadian and foreign satellites.	Ongoing
# 2 Demonstrate innovative space-based solutions using key industrial capabilities to provide fast and cost effective responses to government needs in specific areas such as safety and security, atmospheric and environmental monitoring, disaster management and satellite communication.	Ongoing
# 3 Establish a partnership with NASA to participate in a demonstration mission for the global measurement of lake level and ocean circulation features to ultimately support Canada's need for hydrological and meteorological monitoring, ocean science, and forecasting while positioning sophisticated Canadian technology at the forefront of space activities.	New
<b>Why these are priorities</b>	

These priorities serve Canada's national interests by enabling access to space information to respond to GoC organizations' needs for high quality space data, applications and services essential for the provision of services to Canadians. They strategically utilize Canadian industry in areas of proven capabilities and support the development of high potential leading-edge technologies while leveraging international partnerships to achieve our nation's strategic goals.

#### Plans for meeting these priorities

- Provide continuity and enhanced functionalities to the users of RADARSAT-2 by continuing the implementation phase of the RADARSAT Constellation Mission (RCM) project, including multiple intermediary deliverables throughout its six year duration and culminating in the launch of a third satellite in 2018. Complete the feasibility study of the north-eastern ground station for timely implementation to support the on-orbit commissioning and operations of the third satellite.
- Develop promising mission concepts in earth observation and satellite communications. Study implementation approaches, notably the use of micro and small satellite platforms aimed at demonstrating and initiating innovative space-based services.
- Develop Canadian participation in the Surface Water and Ocean Topography (SWOT) demonstration mission for launch in 2020. SWOT data will be of great use for hydrological and meteorological monitoring and forecasting, and for ocean science and forecasting.

**Program – Space Exploration**

**Contribution of the Program to the CSA Strategic Outcome**

The CSA’s Space Exploration Program encompasses International Space Station (ISS) activities, human spaceflight, robotic exploration of the solar system, space astronomy, and advanced instruments and technologies development. The contribution of this Program to the strategic outcome is expected to advance the exploration of space thus expanding Canadian knowledge, technologies and expertise along with increased exploitation of this knowledge and know-how both in space and on Earth.

<b>Priorities</b>	<b>Type</b>
#1 Continue Canada’s participation in the ISS by operating and upgrading the Canadian robotic elements (Canadarm2 and Dextre), performing scientific experiments and technology demonstrations and creating flight opportunities for Canadian astronauts.	Ongoing
#2 Foster the development of scientific instruments, advanced space robotics, optics and other technologies capable of contributing to future international space exploration missions.	Ongoing

**Why these are priorities**

The first priority will allow the demonstration of advanced robotics and laser imaging technologies to consolidate industry’s expertise and international competitiveness while focusing the utilisation of the ISS for research in health and life sciences with high potential for terrestrial benefits. The second priority will enable Canada’s participation in future exploration missions which are best suited to generate the desired benefits for the Government of Canada articulated in the program expected results. Overall, Canadian astronauts, signature technologies and scientific discovery make space exploration a source of national pride and an inspiration for scientific and engineering careers and the next generation of Canadian innovators.

**Plans for meeting the priorities**

- Support all ISS operations requiring Canadian’s robotic systems on the ISS, and maintain and upgrade these systems to ensure a robust operational life until the end of 2020. Negotiate with NASA the offsets for the Canadian Common System Operation Costs related to ISS in a way that will position Canadian industry for the next steps in space exploration.
- Utilize the ISS for health and life science studies and for on-orbit demonstration of Canadian signature technologies.
- Continue the development of the Canadian contributions to international space exploration missions such as the James Web Space Telescope (JWST), the ASTRO-H space telescope and the asteroid sample return mission OSIRIS-Rex to evolve Canadian industrial capabilities and maintain competitiveness. The Government has also reaffirmed its commitment to the James Webb Space Telescope project and committed up to \$17 million to support Canada’s continued participation.
- Use the Global Exploration Roadmap and CSA’s own space exploration plans to invest in preparatory activities that will best position Canadian scientists and industry as strategic and cost effective partners in upcoming missions.

**Program – Future Canadian Space Capacity**

**Contribution of the Program to the CSA Strategic Outcome**

The contribution of this Program to the strategic outcome is expected to support maintenance of a critical mass of academic, industrial and business expertise that will be essential to address future national needs and priorities in space and related domains as well as an increased pace of discovery, innovation and the advancement of knowledge.

Priorities	Type
# 1 Generate, maintain and improve the conditions that support the development and retention of Highly Qualified Personnel (HQP) in space and related fields in order to meet Canada’s future requirements for specialized expertise.	Ongoing
# 2 Generate, maintain and improve the conditions that support innovation in space technologies that will meet future national needs and priorities.	Ongoing
<b>Why these are priorities</b>	
<p>Canada’s ability to address national interests through an increasing dependence on space requires a critical mass of HQP in academia, industry and government; therefore, it is vital to develop, mobilize, and retain experts in space and related fields.</p> <p>Economic prosperity and the strength of the Canadian space industry rely on a high degree of innovation and opportunity for commercialization of new technologies. It is crucial that academia and industry are well-placed to conceptualize and develop space solutions that respond to national priorities and international demands. Favorable conditions must be created for innovation as well as for commercialization of these innovations through the promotion of national and international business opportunities.</p>	
<b>Plans for meeting these priorities</b>	
<ul style="list-style-type: none"> <li>• Develop and exploit sub-orbital platforms (balloons, aircraft and sounding rockets) and small satellites to create cost-effective opportunities for training the next generation of space scientists and engineers and advance science and technology.</li> <li>• Increase collaboration and technology transfer between government, industry and academia through coordination with the Granting Councils, the initiation of clusters of excellence, and the tasking of industry and research organizations to advance priority science and technology areas.</li> <li>• Develop a grants and contributions component to the Space Technology Development program (STDP) in order to foster innovation, support industry’s competitiveness and develop Canadian space capabilities.</li> <li>• Assist in developing international collaboration and commercialization opportunities through existing Programs (ESA) and the exploration of new partnerships.</li> </ul>	

**Program– Internal Services**

**Contribution of the Program to the CSA Strategic Outcome**

The contribution of this Program to the strategic outcome is expected to yield better management of programs and services in accordance with the Management Accountability Framework.

<b>Priorities</b>	<b>Type</b>
#1 Establish a new governance structure while strengthening corporate risk assessment and project management processes.	Ongoing
#2 Implement a five-year investment plan in accordance with Treasury Board Secretariat.	Ongoing
<b>Why these are priorities</b>	
<p>As the custodian of the Canadian space program, it is critical that the CSA exercise leadership through broad outreach and formalized coordination of invested stakeholders to optimize resources and ensure excellence in the implementation, oversight and accountability of space related investments.</p>	
<p><b>Plans for meeting these priorities</b></p> <ul style="list-style-type: none"> <li>• Support the Minister by establishing and implementing a Space Advisory Board and a Deputy Minister Governance Committee for Space. The Advisory Board will provide advice on CSA’s space program, and the Governance Committee will oversee all future major space projects to enhance coordination and oversight.</li> <li>• Involve users at all levels of government, industry and academia in the evolution of the Canadian space program.</li> <li>• Encourage the use of multiple sources, both within and beyond the federal government, to fund major space projects.</li> <li>• Develop a 20-year strategic plan that will serve as the foundation for the CSA Investment Plan.</li> </ul>	

### 1.2.5 Risk Analysis

#### Progress on the Renewed Corporate Integrated Risk Management Process

One year ago, the CSA completed the implementation of a new corporate integrated risk process, derived from the 2012 CSA Policy on Integrated Risk and updated its Corporate Risk Profile (CRP). Throughout 2014–15, this CRP will continue to support the provision of information required for open, traceable and accountable decision-making.

The CRP will continue to address corporate risks distinctly from project management issues. It will help assess the degree to which a corporate risk could preclude the achievement of programs expected results and will encourage an increased use of lessons learned from past mitigation plans in support of decision-making.

The CRP considers external factors that may affect the attainment of each of the Program Alignment Architecture (PAA) expected program results at the sub-program level.

Risk	Risk Response Strategy	Programs Most Affected
<p><u>Fiscal management</u> The potential that costs may become greater than originally planned could reduce the amount of funds available to launch new initiatives. Increased costs could compel the CSA to reconsider priorities.</p>	<ul style="list-style-type: none"> <li>- Reduce technological uncertainty by implementing technology development activities at the design stage;</li> <li>- Assess projects' risks and allocate a financial risk margin based on the risks' impacts and probability levels;</li> <li>- Monitor the implementation of a new project management policy;</li> <li>- Develop a new project management methodology; and</li> <li>- Where applicable, implement acquisition strategies based on risk sharing with industry partners.</li> </ul>	<p>1.1.1 1.2.2 1.1.2 1.2.1</p>
<p><u>Space capacity</u> New international competitors, fluctuating technological development and the uncertainty associated with technological development, may impact the long-term priorities of the CSA.</p>	<ul style="list-style-type: none"> <li>- Ongoing updating of the Canadian space technology requirements spectrum;</li> <li>- Promotion of partnerships between industry, the university community and the CSA; Ongoing monitoring of Canadian space sector conditions; and</li> <li>- Partnerships with foreign space agencies to expand academic and industry opportunities to participate in the development of international missions.</li> </ul>	<p>1.2.2 1.3.2 1.1.3 1.3.1</p>

Risk	Risk Response Strategy	Programs Most Affected
<p><u>Gap between expectations and supply</u> Due to possible interruptions, infrastructure challenges, personnel availability, project implementation or changes in partners' requirements and priorities, there may be a gap between partners' expectations and the data and services provided by the CSA.</p>	<ul style="list-style-type: none"> <li>- Ongoing consultations with GoC organizations and the university community regarding long-term requirements;</li> <li>- Ongoing consultations during the development phase about operational requirements;</li> <li>- Cost-effectiveness analysis to determine if small satellite development could provide fast and efficient space solutions;</li> <li>- Ongoing monitoring and implementation of mechanisms to optimize the allocation of RADARSAT-2 data portion of the government's credit;</li> <li>- Monitoring of space objects and collision-avoidance measures; and</li> <li>- Annual updating of the Integrated Human Resources Plan.</li> </ul>	<p>1.1.1</p> <p>1.2.1</p> <p>1.3.3</p> <p>1.1.2</p>
<p><u>Fiscal resource management</u> Because of costs, higher share of funding allocation to operations, or governance, targeted funding needs to be identified to meet CSA space requirements.</p>	<ul style="list-style-type: none"> <li>- Analysis of possible synergies between available resources and equipment, and new mission options;</li> <li>- Reassessment of operating costs;</li> <li>- Search for partnerships for operating cost sharing;</li> <li>- Continuous monitoring of project implementation;</li> <li>- Regular review of the project portfolio, activity plans and schedules;</li> <li>- Regular review of financial management strategies; and</li> <li>- Development of a guide to implement and monitor the investment planning policy.</li> </ul>	<p>1.3.2</p> <p>1.1.1</p> <p>1.2.2</p> <p>1.1.2</p>

**Strategic Context of the Canadian Space Agency**

Over the past fifty years, Canada has established a world-class reputation in areas of satellite communications, Earth observation, advanced space robotics, vision and optical systems, space science and exploration. Yet, compared to others, the Canadian space industry is small, both in terms of the number of firms and human capital. In that context, Canada learned early on that it could leverage its technical and scientific expertise through opportunities with other countries, especially the United States and Europe, to gain global niche market advantage. This has become a hallmark of the Canadian space program.

Meanwhile, the global space sector has been transformed as governments and civil space agencies positioned space as a strategic asset. The post-war domination by a few “great space powers” has given way to emerging players and strategic alliances. While the United States continue to dominate the sector, countries like China, India, South Korea and Japan, to name just a few, have seen their space budgets increased significantly in the past. As Canada continue to be regarded as a reliable partner that possesses unique technical and scientific capabilities and as a nation that contributes signature space technologies to the initiatives led by foreign space agencies, these new international developments offer important opportunities for cooperation at both the government and commercial levels. Thus, Canada strives to gain a foothold in these critical space markets, working closely with its stakeholders to position Canadian scientists and companies in civil and commercial space initiatives as well as to respond to national needs.

### **Operational Context**

While the chosen approach over the past decades to concentrate Canada’s efforts in a few strategic space technologies has been successful, it has led to a highly concentrated industry. On the other hand, the growth of small companies continues to represent a challenge because of their limited resources to market adequately their products and services worldwide. Consequently, the Canadian space industry remains reliant on continued research and development investments to overcome its growth challenges. Thus CSA will pursue its support in the development of sub-orbital platforms to increase the pace of training and scientific discovery. The decision to invest in this specific Canadian human and knowledge advantage, as well as advancing space robotics and other technologies aims at maintaining Canada’s competitive edge.

At the national level, space assets have been used increasingly to respond to national priorities. As depicted in the 2012–13 Departmental Performance Report (DPR), many departments rely on space-based data to deliver their mandate and many others expect to do so in the near future. The rapidly evolving context, the various needs, and the long-term timeframe to develop assets imply that difficult choices must be made. The diversity of missions and partnership opportunities to choose from is large. In that context, there is a risk that gaps will occur between services provided and the services needed by the users. To mitigate that risk, the CSA will support the development of small satellite technology which will provide fast and cost effective responses to government needs while continuing the management and optimization of RADARSAT-2 data allocation. This approach will ensure that the needs for synthetic aperture radar data by operational government users are met in a sustainable way until the RADARSAT Constellation Mission is launched in 2018.

Finally, programmatic or technical difficulties associated with space missions represent another important source of risks. Typically, those risks lead to cost increases and schedule slippages. Additional challenges can appear due to the long-term duration of space missions, their international dimension, and their uniqueness based on very stringent space hardware quality control requirements. In order to mitigate those risks, the CSA will implement a new Policy on the Management of Project and a Project Management Methodology, thus enhancing the management and control process already in place.



### 1.3 PLANNED EXPENDITURES

#### Budgetary Financial Resources (Planned Spending—in dollars)

2014–15 (Main Estimates)	2014–15 Planned Spending	2015–16 Planned Spending	2016–17 Planned Spending
462,447,174	462,447,174	410,289,344	360,347,956

#### Total Human Resources (Full-Time Equivalents—FTEs)

2014–15	2015–16	2016–17
643.6	613.3	613.3

*Note: There is no correlation between the annual fluctuations of the budget and the number of full-time equivalents. The budget variations are mainly due to the projects' development cycle and their associated cash flow requirements (re-profiling + additional funds RCM). Consequently, these do not entail any adjustment on the annual number of full-time equivalents under the CSA A-Base budget.*

*Note: Students are now included in the FTE calculation.*

#### Budgetary Planning Summary (Planned Spending—in dollars)

Strategic Outcome: Canada's exploration of space, provision of space services and development of its space capacity meet the nation's needs for scientific knowledge, innovation and information.							
Programs and Internal Services	2011–12 Expenditures	2012–13 Expenditures	2013–14 Forecast Spending	2014–15 Main Estimates	2014–15 Planned Spending	2015–16 Planned Spending	2016–17 Planned Spending
Space Data, Information and Services	137,297,150	130,830,203	210,795,902	256,908,528	256,908,528	192,301,464	151,261,351
Space Exploration	146,317,119	87,496,584	98,425,152	96,586,363	96,586,363	109,789,405	99,583,310
Future Canadian Space Capacity	69,563,250	52,480,907	55,220,157	62,772,518	62,772,518	64,627,670	66,165,065
Internal Services	55,957,996	49,437,721	49,253,345	46,179,765	46,179,765	43,570,805	43,338,230
<b>Total</b>	409,135,515	320,245,415	413,694,556	462,447,174	462,447,174	410,289,344	360,347,956

**1.4 ALIGNMENT TO GOVERNMENT OF CANADA OUTCOMES**

**2014–15 Planned Spending by the Whole-of-Government-Framework Spending Area**  
 (<http://www.tbs-sct.gc.ca/ppg-cpr/frame-cadre-eng.aspx>)

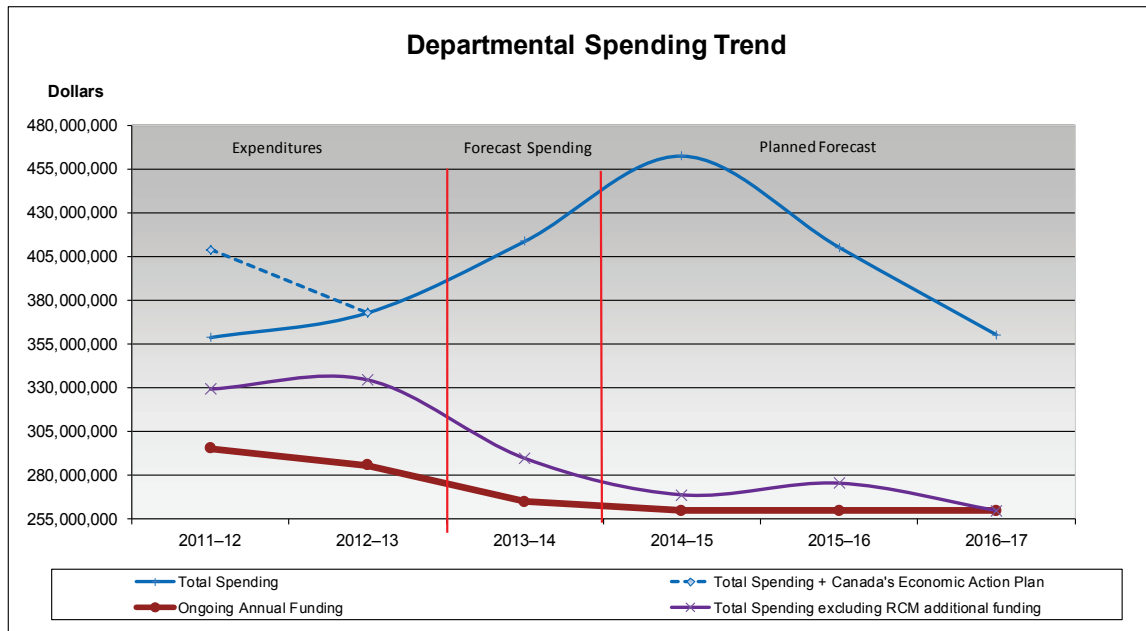
(in dollars)

<b>Strategic Outcome: Canada’s exploration of space, provision of space services and development of its space capacity meet the nation’s needs for scientific knowledge, innovation and information.</b>			
<b>Programs and Internal Services</b>	<b>Spending area</b>	<b>Government of Canada Outcome</b>	<b>2014–15 Planned Spending</b>
1.1 Space Data, Information and Services	Government Affairs	Well-managed and efficient government operations	256,908,528
1.2 Space Exploration	Economic Affairs	An innovative and knowledge-based economy	96,586,363
1.3 Future Canadian Space Capacity	Economic Affairs	An innovative and knowledge-based economy	62,772,518

**Total Planned Spending by Spending Area (in dollars)**

<b>Spending Area</b>	<b>Total Planned Spending</b>
Economic Affairs	159,358,881
Government Affairs	256,908,528

## 1.5 DEPARTMENTAL SPENDING TREND



The CSA's annual A-Base budget of \$300 million was set in Budget 1999 but the difference in the spending trend shown above is mainly attributable to the following factors:

- The cumulative impact of the reprofiling of funds associated with the sound management of high-risk projects and programs (e.g., high technology risks, long term development cycle, uncertainties with work schedules, implementation delays).
- In Budget 2009, Canada's Economic Action Plan (Action to Support Businesses and Communities) provided the Canadian Space Agency with \$110 million over three years so that it can contribute to the development of terrestrial prototypes for space robotic vehicles, such as the Mars Lander and Lunar Rover, and for the further development of other technologies and space robotics. The Canadian Space Agency has played an important role by working with the private sector to support advanced research, development and prototyping for new space-based technologies.
- In Budget 2010, CSA was granted a sum of \$397 million over five years (2010–11 to 2014–15) to develop the RADARSAT Constellation Mission. Furthermore, CSA has received additional funding of \$374 million over six years (2013–14 to 2018–19) and, of this amount, \$234.2 million comes from transfers from other government departments.

- On August 4, 2011, an Order in Council established Shared Services Canada (SSC) as part of the Public Works and Government Services Canada portfolio to streamline and reduce duplication in the government's Information Technology services. Shared Services Canada will consolidate the resources and personnel currently supporting email, data centers and networks, and associated internal services. In 2011–12, unexpended authorities related to functions transferred to SSC correspond to \$3.5 million. Starting in 2012–13, CSA transferred \$7.2 million to SSC.
- CSA's contribution to Budget 2012 Strategic Operating Review is \$7.9 million for fiscal year 2012–13, \$24.7 million for fiscal year 2013–14 and \$29.5 million for fiscal year 2014–15 and for years to come.

## **1.6 ESTIMATES BY VOTE**

For more information on our organizational votes and/or statutory expenditures, please see the 2013–14 Main Estimates publication. An electronic version of the Main Estimates is available at <http://www.tbs-sct.gc.ca/est-pre/index-eng.asp>.

## **1.7 CONTRIBUTION TO THE FEDERAL SUSTAINABLE DEVELOPMENT STRATEGY**

The CSA is not in the Schedule of the Federal Sustainability development Act (FSDA), therefore it will not describe its contribution to the FSD Strategy for 2014–15.



## SECTION 2: ANALYSIS OF PROGRAMS BY STRATEGIC OUTCOME

### 2.1 CANADIAN SPACE AGENCY STRATEGIC OUTCOME

All CSA Programs contribute to a single strategic outcome: *Canada's exploration of space, provision of space services and development of its space capacity meet the nation's needs for scientific knowledge, innovation and information.*

### 2.2 PROGRAMS

#### 1.1 – Program - Space Data, Information and Services (SDIS)

**Description:** This Program includes the provision of space-based solutions (data, information and services) and the progression of their utilization. It also serves to install and run ground infrastructure that processes the data and operates satellites. This Program utilizes space-based solutions to assist Government of Canada (GoC) organizations in delivering growing, diversified or cost-effective programs and services within their mandate, which is related to key national priorities, such as sovereignty, defence, safety and security, resource management, environmental monitoring and the North. It also provides academia with data required to perform its own research. The services delivered through this Program are rendered, and the data and information are generated and processed, with the participation of the Canadian space industry, academia, GoC organizations, national and international organizations, such as: foreign space agencies, not-for-profit organizations, as well as provincial and municipal governments. This collaborative effort is formalized under national and international partnership agreements, contracts. This Program is also funded through the Class Grant and Contribution Program.

#### Budgetary Financial Resources – Program Level (in dollars)

2014–15 Main Estimates	2014–15 Planned Spending	2015–16 Planned Spending	2016–17 Planned Spending
256,908,528	256,908,528	192,301,464	151,261,351

#### Human Resources (Full-Time Equivalent—FTE) – Program Level

2014–15	2015–16	2016–17
109.8	104.6	104.6

*Note: There is no correlation between the annual fluctuations of the budget and the number of full-time equivalents. The budget variations are mainly due to the projects' development cycle and their associated cash flow requirements (re-profiling + additional funds RCM). Consequently, these do not entail any adjustment on the annual number of full-time equivalents under the CSA A-Base budget.*

*Note: Students are now included in the FTE calculation at all program levels.*

<b>1.1 SDIS Program Expected Result</b>	<b>Performance Indicator</b>	<b>Target * and Date to be achieved</b>
R-1. GoC organizations offer more diversified or cost-effective programs and services due to their utilization of space-based solutions.	Ind-1. Number of new GoC's programs offering more diversified or efficient services.	T-1. Based on benchmark established in 2013–14.

\*Targets at all levels of the PAA are to be achieved by March 31st, 2014, unless specified otherwise.

**PLANNING HIGHLIGHTS FOR THE PROGRAM SPACE DATA, INFORMATION AND SERVICES**

- The CSA will keep managing and optimizing the RADARSAT-2 data allocation to ensure that the needs for synthetic aperture radar data by operational government users are met in a sustainable way. Each year, a varied portion of the \$445 million worth of prepaid RADARSAT-2 data is consumed.
- The CSA will continue the implementation phase of the RADARSAT Constellation Mission (RCM) initiated at the end of fiscal year 2012–13. This phase, planned to last almost 6 years, will include multiple intermediary deliverables throughout its duration and will culminate with the launch of the third satellite scheduled for 2018. While ensuring continuity of space data from its predecessors RADARSAT-1 and -2 for approximately a dozen government departments, the RCM will enhance Canada’s ability to use space-based solutions for operational maritime surveillance, disaster management and ecosystem monitoring and will support the strategic objectives of Canada on security and sovereignty, particularly in the Arctic.
- The CSA will continue to support its partner Department of National Defence (DND) in post launch activities of the M3MSAT joint micro-satellite project which will demonstrate and further develop a multi-mission bus capability; allow optimization of the Automatic Identification System (AIS) payload in maritime traffic identification; and significantly support Canadian industry business development strategies in a global market context. This complement to CSA's RADARSAT Constellation and DND's Polar Epsilon missions is scheduled to launch in March 2014.
- The CSA will continue to develop Canadian participation in the Surface Water and Ocean Topography (SWOT) demonstration mission led by NASA and CNES (French space agency) for launch in 2020. The mission will allow global measurement of lake level and ocean circulation features. The SWOT data are expected to be of great utility to Environment Canada for hydrological and meteorological monitoring and forecasting, and to Fisheries and Oceans Canada for ocean science and forecasting.
- The CSA will continue to take advantage of Canada’s favourable northern location. A modern, integrated and coordinated national system of ground infrastructure is required to operate the Canadian space assets and for the timely capture of space data from domestic or foreign satellites. Federal departments are partnering to ensure adequate ground station coverage of the Canadian territory, especially over the Arctic where many gaps exist.

- The CSA will continue to develop promising mission concepts to demonstrate innovative space-based solutions in Earth Observation and Satellite Communications. Various implementation approaches to meet users' needs will continue to be studied, notably the use of micro and small satellite platforms. Three concepts will be studied, leading to the announcement of the most promising missions in March 2016.

<p><b>1.1.1 Sub-Program - Earth Orbit Satellite Missions and Technology:</b> This Sub-Program encompasses the development of complete Canadian satellite systems or of sub-systems, payloads, instruments or other components provided to domestic and foreign satellites. This Sub-Program also includes the development of advanced technologies that could shape or determine the nature of potential new Earth orbit satellite missions. This Sub-Program is necessary because Government of Canada (GoC) organizations use satellite-generated data, information and services to deliver their mandate; and so, do academia to perform their research. This Sub-Program is delivered in collaboration with GoC organizations, along with the participation of Canadian industry, academia and foreign space agencies. This collaborative effort is formalized under contracts, grants, contributions and partnership agreements with national, public/private and international organizations.</p>		
Sub-Program Expected Result	Performance Indicators	Targets and Dates to be achieved
R-1. GoC organizations are using space-based data to deliver their mandate.	<p>Ind-1. Number of GoC's programs using space data or related information to deliver their mandate.</p> <p>Ind-2. Percentage of RADARSAT data used in program's delivery.</p>	<p>T-1. Based on benchmark established in 2013–14.</p> <p>T-2. 40% (R&amp;D), 60% (Ops).</p>

**Budgetary Financial Resources – Sub-Program Level (in dollars)**

2014–15 Planned Spending	2015–16 Planned Spending	2016–17 Planned Spending
233,703,298	163,494,649	126,229,641

**Human Resources (Full-Time Equivalent—FTE) – Sub-Program Level**

2014–15	2015–16	2016–17
72.5	69.1	69.1

**Additional Planning Highlights for the Sub-Program - Earth Orbit Satellite Missions and Technology:** [HTTP://WWW.ASC-CSA.GC.CA/ENG/PUBLICATIONS/RP.ASP#RP](http://www.asc-csa.gc.ca/eng/publications/rp.asp#rp)



**1.1.1.1 Sub-Sub-Program – Earth Observation Missions:** This Sub-Sub-Program encompasses the definition, design, technology development, and implementation of Earth orbit satellites dedicated to producing data, information or imagery of Earth and its atmosphere, ranging from its subsurface to its upper atmospheric layers, including space surveillance for asteroids, Earth orbiting objects and space debris. This Sub-Sub-Program serves continuous operations and is necessary to produce pertinent Earth Observation data and imagery that assist with the mandate delivery of Government of Canada (GoC) organizations that deal especially with key national priorities, such as environment, climate change, weather, natural resources, sovereignty, defence, safety and security. It also provides academia with data required for its research. This Sub-Sub-Program is delivered in collaboration with GoC organizations, along with the participation of Canadian industry, academia and foreign space agencies. This collaborative effort is formalized under contracts, grants, contributions and partnership agreements with national, public/private and international organizations.

<b>Sub-Sub-Program Expected Result</b>	<b>Performance Indicators</b>	<b>Targets and Dates to be achieved</b>
R-1. Earth Observation (EO) missions provide GoC organizations and academia with data and information	Ind-1. Number of GoC programs provided with data and images from EO missions.  Ind-2. Number of users of EO data.  Ind-3. Number of academia provided with data and images from EO missions.	T-1 & T.2. Based on benchmarks to be established in 2014–15.  T-3. 10

**Budgetary Financial Resources – Sub-Sub-Program Level (in dollars)**

<b>2014–15 Planned Spending</b>	<b>2015–16 Planned Spending</b>	<b>2016–17 Planned Spending</b>
226,966,923	157,253,059	116,399,836

**Human Resources (Full-Time Equivalent—FTE) – Sub-Sub-Program Level**

<b>2014–15</b>	<b>2015–16</b>	<b>2016–17</b>
54.5	52.0	52.0

**1.1.1.2 Sub-Sub-Program – Communications Missions:** This Sub-Sub-Program encompasses the definition, design, technology development, and implementation of Earth orbit satellites dedicated to delivering continuous communications, including Navigation, Positioning and Timing (NPT) services. This Sub-Sub-Program serves continuous operations and is necessary to provide pertinent communications and NPT services that assist Government of Canada (GoC) organizations in the delivery of their mandate, particularly those locating and monitoring vehicle or ship signals, those dealing with remote communities or those managing other key national priorities, such as sovereignty, defence, safety and security. This Sub-Sub-Program is delivered in collaboration with GoC organizations, along with the participation of Canadian industry, academia and foreign space agencies. This collaborative effort is formalized under contracts, grants, contributions and partnership agreements with national, public/private and international organizations.

<b>Sub-Sub-Program Expected Result</b>	<b>Performance Indicators</b>	<b>Targets and Dates to be achieved</b>
R-1. Satellites provide communications services that respond to the expressed needs of GoC organizations.	Ind-1. Number of Satellite Communication missions/instruments in operation. Ind-2. Number of GoC organizations using data from Satellite Communication missions.	T-1. 2 T-2. 1

**Budgetary Financial Resources – Sub-Sub-Program Level (in dollars)**

<b>2014–15 Planned Spending</b>	<b>2015–16 Planned Spending</b>	<b>2016–17 Planned Spending</b>
2,325,450	2,232,440	2,217,295

**Human Resources (Full-Time Equivalent—FTE) – Sub-Sub-Program Level**

<b>2014–15</b>	<b>2015–16</b>	<b>2016–17</b>
14.5	13.8	13.8

**1.1.1.3 Sub-Sub-Program – Scientific Missions:** This Sub-Sub-Program encompasses the definition, design, technology development, and implementation of Earth orbit satellites dedicated to producing scientific data and information for research performed by Government of Canada (GoC) organizations or academia. Examples of this research are those pertaining to climate processes and space weather (solar winds and their interaction with the Earth’s magnetic field). This Sub-Sub-Program is necessary to produce pertinent scientific data and information that allow GoC organizations to mitigate damage or avoid the disabling of critical ground and space infrastructure, such as pipelines, electricity networks and satellites that can sustain damage from the effects of solar winds. In addition, with their enhanced understanding of climate processes and the improved models made possible through this Sub-Sub-Program, GoC organizations are better able to provide weather and climate forecasting. Academia also uses the data and information produced through this Sub-Sub-Program to perform its own research. This Sub-Sub-Program is delivered in collaboration with GoC organizations, along with the participation of Canadian industry, academia and foreign space agencies. This collaborative effort is formalized under contracts, grants, contributions and partnership agreements with national, public/private and international organizations.

<b>Sub-Sub-Program Expected Result</b>	<b>Performance Indicators</b>	<b>Targets and Dates to be achieved</b>
R-1. Sun-Earth System scientific space missions reflect GoC organizations and academia priorities.	Ind-1. Number of Sun-Earth System missions/instruments in operation. Ind-2. Number of Canadian and international partners participating in CSA's Sun-Earth System science missions.	T-1. 25 T-2. 130

**Budgetary Financial Resources – Sub-Sub-Program Level (in dollars)**

2014–15 Planned Spending	2015–16 Planned Spending	2016–17 Planned Spending
4,410,925	4,009,150	7,612,510

**Human Resources (Full-Time Equivalent—FTE) – Sub-Sub-Program Level**

2014–15	2015–16	2016–17
3.5	3.4	3.4

**1.1.2 Sub-Program – Ground Infrastructure:** This Sub-Program includes the development, installation and use of an integrated and coordinated national system of ground infrastructure to receive data from domestic or foreign satellites. In addition, the ground infrastructure houses and uses the equipment required for satellite operations. This Sub-Program is necessary to operate satellites as well as to process and make available space-based data received by the Canadian Space Agency to assist Government of Canada (GoC) organizations in delivering their mandate. Finally, this Sub-Program capitalizes on Canada's geographical advantage by capturing space data from the increasing number of satellites flying over the Arctic and by installing ground stations in this strategic location. This Sub-Program is delivered with the participation of industry, GoC organizations and foreign space agencies. This collaborative effort is formalized under contracts, grants, contributions and partnership agreements with national, public/private and international organizations.

Sub-Program Expected Results	Performance Indicators	Targets and Dates to be achieved
R-1. Expressed Canadian and foreign data needs are fulfilled by ground infrastructure.	Ind-1. Percentage of acquisitions request fulfilled.	T-1. RDSAT-2 85% SCISAT-1 85% NEOSSAT 70%
	Ind-2. Ratio of acquisitions request fulfilled to missions acquisition requirements.	T-1. RDSAT-2 50% SCISAT-1 80% NEOSSAT 65%
R-2. National ground infrastructure is reliable.	Ind-1. Percentage of successful satellites contacts.	T-1. 90%

**Budgetary Financial Resources – Sub-Program Level (in dollars)**

2014–15 Planned Spending	2015–16 Planned Spending	2016–17 Planned Spending
12,931,520	18,793,105	15,018,000

**Human Resources (Full-Time Equivalent—FTE) – Sub-Program Level (in dollars)**

2014–15	2015–16	2016–17
28.9	27.5	27.5

**Additional Planning Highlights for the Sub-Program - Ground Infrastructure:**

[HTTP://WWW.ASC-CSA.GC.CA/ENG/PUBLICATIONS/RP.ASP#RP](http://www.asc-csa.gc.ca/eng/publications/rp.asp#rp)

**1.1.2.1 Sub-Sub-Program – Satellite Operations:** This Sub-Sub-Program encompasses the Telemetry, Tracking and Command (TT&C) of Canadian satellites or of foreign satellites when such services are required from Canadian stations. It also includes the development, installation and use of ground infrastructure that processes the data and operates satellites. This Sub-Sub-Program is necessary to render orbiting satellites functional. The operations of Canadian Space Agency (CSA) satellites are mostly conducted with CSA equipment located in Canada. In some instances, formal arrangements can be concluded between CSA, Canadian industry, Government of Canada (GoC) organizations or international partners to operate one party's satellites using another party's equipment. Those arrangements can also provide for the location of one party's equipment in another party's facilities.

Sub-Sub-Program Expected Results	Performance Indicators	Targets
R-1. CSA's satellites are functioning as per operational requirements.	Ind-1. Percentage of system availability.  Ind-2. Number of Canadian satellites operated by CSA as per operations requirements.	T-1. SCISAT-1: 90% NEOSSAT: 80%  T-2. 2: SCISAT-1, NEOSSAT.
R-2. Foreign Satellite Missions are supported.	Ind-1. Number of foreign satellites supported.	T-1. 2.

#### Budgetary Financial Resources – Sub-Sub-Program Level (in dollars)

2014–15 Planned Spending	2015–16 Planned Spending	2016–17 Planned Spending
7,227,840	13,913,985	10,264,510

#### Human Resources (Full-Time Equivalent—FTE) – Sub-Sub-Program Level

2014–15	2015–16	2016–17
26.6	25.3	25.3

**1.1.2.2 Sub-Sub-Program – Data Handling:** This Sub-Sub-Program includes a coordinated national approach to determine optimal station locations and space data handling. This Sub-Sub-Program is necessary for the planning and tasking of data acquisition, as well as the capture, calibration, cataloguing, archiving and availability of space data received from domestic or foreign satellites to assist Government of Canada (GoC) organizations in delivering their mandate. Data handling operations are mostly conducted with Canadian Space Agency (CSA) equipment, located in its ground facilities. In some instances, formal arrangements can be concluded between CSA, GoC organizations or international partners to use another party's equipment located within its facilities. This Sub-Sub-Program is delivered with the participation of Canadian industry, foreign space agencies and GoC organizations. This collaborative effort is formalized under contracts, grants, contributions and partnership agreements with national, public/private and international organizations.

<b>Sub-Sub-Program Expected Result</b>	<b>Performance Indicators</b>	<b>Targets and Dates to be achieved</b>
R-1. Satellite data are provided to GoC organizations and academia.	Ind-1. Number of RADARSAT-2 frames delivered to GoC organizations and other customers.  Ind-2. Number of reliable and used instruments in Sun-Earth system sciences.	T-1. 25,000  T-2. 28

**Budgetary Financial Resources – Sub-Sub-Program Level (in dollars)**

<b>2014–15 Planned Spending</b>	<b>2015–16 Planned Spending</b>	<b>2016–17 Planned Spending</b>
5,703,680	4,879,120	4,753,490

**Human Resources (Full-Time Equivalent—FTE) – Sub-Sub-Program Level**

<b>2014–15</b>	<b>2015–16</b>	<b>2016–17</b>
2.3	2.2	2.2

**1.1.3 Sub-Program – Space Data, Imagery and Services Utilization Development:** This Sub-Program develops utilization of space-based data, imagery and information, and of communications services available on space assets for the benefit of the user community, primarily Government of Canada (GoC) organizations and academia. This Sub-Program is necessary to foster the development of a Canadian value-added industry that turns space data and information into readily useable products, as well as to increase the ability of GoC organizations to use space-based solutions (data, information and services) for the delivery of their mandate and to increase the ability of academia to perform their research. This Sub-Program engages the participation of the Canadian space industry and academia and is formalized under contracts and partnership agreements with national, public/private and international organizations. This Sub-Program is also funded through the Class Grant and Contribution Program.

<b>Sub-Program Expected Results</b>	<b>Performance Indicators</b>	<b>Targets and Dates to be achieved</b>
R-1. GoC organizations are using space based solutions to deliver their mandate.	Ind-1. Number of GoC's programs using developed applications and related information. Ind-2. Average number of programs using each developed applications.	T-1 & T-2. Based on benchmarks established in 2013–14.
R-2. The Canadian scientific community use space-based data to conduct their research.	Ind-1. Number of peer-reviewed papers related to data utilization produced in academia and R&D community in Canada.	T-1. SOAR: 7 SESS: 200

SOAR: Solar Occultation for Atmospheric Research  
SESS: Sun-Earth System Sciences

**Budgetary Financial Resources – Sub-Program Level (in dollars)**

2014–15 Planned Spending	2015–16 Planned Spending	2016–17 Planned Spending
10,273,710	10,013,710	10,013,710

**Human Resources (Full-Time Equivalent—FTE) – Sub-Program Level**

2014–15	2015–16	2016–17
8.3	7.9	7.9

**Additional Planning Highlights for the Sub-Program Space Data, Imagery and Services Utilization Development:** [HTTP://WWW.ASC-CSA.GC.CA/ENG/PUBLICATIONS/RP.ASP#RP](http://www.asc-csa.gc.ca/eng/publications/rp.asp#rp)

**1.1.3.1 Sub-Sub-Program – Earth Observation Data and Imagery Utilization:** This Sub-Sub-Program develops the utilization of Earth observation (EO) imagery and atmospheric data acquired from Canadian and foreign space assets, ranging from its sub-surface to its upper atmospheric layers. This also applies to weather and climate imagery. This Sub-Sub-Program is necessary to broaden the applicability of currently available Earth observation space products and services (optimization) or to create new ones (innovation) for the user community (Government of Canada (GoC) organizations and academia). This Sub-Sub-Program engages the participation of the Canadian space industry and academia and is formalized under contracts and partnership agreements with national, public/private and international organizations. This Sub-Sub-Program is also funded through the Class Grant and Contribution Program.

Sub-Sub-Program Expected Results	Performance Indicators	Targets and Dates to be achieved
R-1. Enhanced GoC organizations ability to turn space data into products and services.	Ind-1. Number of EO data utilization activities supporting the development and utilisation of data.	T-1. GRIP: 10
R-2. Canadian industry ability to turn space data into products and services.	Ind-1. Number of EO data utilization activities supporting the development and utilisation of data.	T-1. EOADP: 24
R-3. The scientific community produces new ideas to turn space data into products and services.	Ind-1. Number of EO data utilization activities supporting the development and utilisation of data.	T-1. SOAR: 175

GRIP: Government Related Initiatives Program

EOADP: Earth Observation Application Development Program

SOAR: Solar Occultation for Atmospheric Research

**Budgetary Financial Resources – Sub-Sub-Program Level (in dollars)**

<b>2014–15 Planned Spending</b>	<b>2015–16 Planned Spending</b>	<b>2016–17 Planned Spending</b>
9,770,510	9,495,510	9,495,510

**Human Resources (Full-Time Equivalent—FTE) – Sub-Sub-Program Level**

<b>2014–15</b>	<b>2015–16</b>	<b>2016–17</b>
7.2	6.8	6.8

**1.1.3.2 Sub-Sub-Program – Communications Services Utilization:** This Sub-Sub-Program develops the utilization of space communications, including Navigation, Positioning and Timing (NPT) services available through Canadian and foreign satellites. This Sub-Sub-Program is necessary to broaden the applicability of currently available communications services (optimization) or to create new ones (innovation) for Government of Canada (GoC) organizations. This Sub-Sub-Program engages the participation of the Canadian space industry and is formalized under contracts, grants, contributions and partnership agreements with national, public/private and international organizations.

<b>Sub-Sub-Program Expected Result</b>	<b>Performance Indicator</b>	<b>Target and Date to be achieved</b>
R-1. Enhanced GoC organizations ability to use communications space assets.	Ind-1. Number of communications application development activities supporting the development and utilisation of services.	T-1. 4

**Budgetary Financial Resources – Sub-Sub-Program Level (in dollars)**

<b>2014–15 Planned Spending</b>	<b>2015–16 Planned Spending</b>	<b>2016–17 Planned Spending</b>
329,900	344,900	344,900

**Human Resources (Full-Time Equivalent—FTE) – Sub-Sub-Program Level**

<b>2014–15</b>	<b>2015–16</b>	<b>2016–17</b>
1.0	0.9	0.9

**1.1.3.3 Sub-Sub-Program – Scientific Data Utilization:** This Sub-Sub-Program develops the utilization and validates the quality of Canadian and foreign space-based scientific data and derived information that address science questions, such as those related to our understanding of the Earth’s climate system and magnetic field (magnetosphere). This Sub-Sub-Program involves the collaboration of Canadian scientists from Government of Canada (GoC) organizations and academia. This Sub-Sub-Program is necessary to broaden the applicability of currently available space scientific data (optimization) or to create new ones (innovation) for GoC organizations and academia, especially in weather forecasts, climate change and space weather. This Sub-Sub-Program engages the participation of the Canadian space industry, academia and GoC organizations scientists, and is formalized under contracts and partnership agreements with national, public/private and international organizations. This Sub-Sub-Program is also funded through the Class Grant and Contribution Program.

Sub-Sub-Program Expected Result	Performance Indicators	Target
R-1. Enhanced scientific community ability to use scientific data.	Ind-1. Number of Sun-Earth system scientific activities supporting the development and utilisation of data.	T-1. 35

**Budgetary Financial Resources – Sub-Sub-Program Level (in dollars)**

2014–15 Planned Spending	2015–16 Planned Spending	2016–17 Planned Spending
173,300	173,300	173,300

**Human Resources (Full-Time Equivalent—FTE) – Sub-Sub-Program Level**

2014–15	2015–16	2016–17
0.2	0.2	0.2

**Planning and Reporting Continuity**

RPP 2013–14 and DPR 2012–13:

<http://www.asc-csa.gc.ca/asc/eng/resources/publications/default.asp#parliament>

To learn more about Earth observation, go to:

<http://www.asc-csa.gc.ca/asc/eng/satellites/default.asp?page=observation>

To learn more about satellite communications, go to:

<http://www.asc-csa.gc.ca/asc/eng/satellites/default.asp>



## 1.2 – Program - Space Exploration (SE)

**Description:** This Program provides valuable Canadian science, signature technologies and qualified astronauts to international space exploration endeavours. This Program contributes to the Government of Canada's Science and Technology Strategy. It fosters the generation of knowledge as well as technological spin-offs that contribute to a higher quality of life for Canadians. It generates excitement within the population in general and contributes to nation-building. This Program appeals to the science and technology communities. It is targeted mostly towards Canadian academia and international space exploration partnerships. Canadian industry also benefits from the work generated within this Program. This Program is delivered with the participation of foreign space agencies and Government of Canada (GoC) organizations. This collaborative effort is formalized under international partnership agreements and contracts.

### Budgetary Financial Resources – Program Level (in dollars)

2014–15 Main Estimates	2014–15 Planned Spending	2015–16 Planned Spending	2016–17 Planned Spending
96,856,363	96,856,363	109,789,405	99,583,310

### Human Resources (Full-Time Equivalent—FTE) – Program Level

2014–15	2015–16	2016–17
179.5	171.3	171.3

*Note: There is no correlation between the annual fluctuations of the budget and the number of full-time equivalents. The budget variations are mainly due to the projects' development cycle and their associated cash flow requirements (re-profiling + additional funds RCM). Consequently, these do not entail any adjustment on the annual number of full-time equivalents under the CSA A-Base budget.*

*Note: Students are now included in the FTE calculation at all program levels.*

1.2 SE Program Expected Results	Performance Indicators	Targets * and Dates to be achieved
R-1.Expansion of scientific knowledge acquired through space exploration endeavours.	Ind-1.Number of peer-reviewed scientific publications, reports and conference proceedings based on space exploration data produced by researchers (sciences and technology) in Canada.	T-1. 75
R-2. Multiple use and applications of knowledge and know-how acquired through space exploration endeavours.	Ind-1.Number of terrestrial applications of knowledge and know-how acquired through space exploration endeavours. Ind-2. Number of space re-utilization of knowledge and know-how acquired through space exploration endeavours.	T-1. 2 T-2. 1

\*Targets at all levels of the PAA are to be achieved by March 31st, 2014, unless specified otherwise.

## **PLANNING HIGHLIGHTS FOR THE PROGRAM SPACE EXPLORATION**

- The CSA will continue to fulfill its International Space Station obligations until 2020. It involves operating the Mobile Servicing System (MSS); maintaining and providing technical support; providing MSS-related training and qualification for astronauts, cosmonauts and ground support personnel; developing new flight products and procedures to support planned MSS operations.
- The CSA will finalize the negotiation and continue the implementation of the agreement with NASA to provide technologies and services that will offset Canada's share of the ISS Common System Operation Costs to 2020. The objective of this exercise will be to ensure that a potential agreement between NASA and the CSA optimizes Canadian industry benefits and provides an opportunity for investments in emerging Canadian technology.
- Canada is participating in the James Webb Space Telescope (JWST), a major facility-class space observatory that is planned to be launched in 2018. By virtue of the CSA's contribution, Canadian astronomers are guaranteed access to 5% of the observing time of the James Webb Space Telescope. The Government has also reaffirmed its commitment to the James Webb Space Telescope project and committed up to \$17 million to support Canada's continued participation.
- The CSA will support the completion of an optical metrology system for the JAXA's lead mission ASTRO-H, an X-ray space astronomy telescope, scheduled for launch in 2015. The CSA's participation in this mission will foster Canadian industrial capabilities in optics and will enable Canadian scientists to obtain observation time on the telescope.
- The CSA will support the design and development stages for the NASA's OSIRIS-Rex Laser Altimeter. This laser altimeter will provide global topographic mapping of the target asteroid's surface and assist the mission with its navigation. It is expected to be launched in 2016 and it will be the first mission to return samples from an asteroid.
- In line with the Canadian Space Exploration Plan, the CSA will continue to support the development of concepts for planetary and space astronomy missions; it will oversee the deployment of terrestrial prototypes of rovers and payloads; and it will continue to explore the development of medical concepts of operations as well as medical technologies and procedures for human space flight. The CSA will also initiate new prototyping activities and support analogue mission deployments, working in collaboration with industrial and academic partners such as the NSERC Canadian Field Robotics Network.

**1.2.1 Sub-Program – International Space Station (ISS):** This Sub-Program uses the International Space Station (ISS) – a unique Earth orbiting laboratory – to learn, to live and work in space while conducting scientific, medical and engineering studies. It includes the assembly and maintenance of the ISS through the use of the Canadian Mobile Servicing System (MSS) and the design, development and operations of payloads and technological demonstrations aboard the ISS. This Sub-Program is necessary to generate specific understanding and technological advances to prepare for the challenges of space exploration and for terrestrial benefits. This Sub-Program provides Canadian industry and academia privileged access to the ISS. This Sub-Program is performed in collaboration with Government of Canada (GoC) organizations and foreign space agencies. This collaborative effort is captured under contracts and/or international partnership agreements.

Sub-Program Expected Results	Performance Indicators	Targets
R-1. Development of operational and technological know-how related to long-duration space missions (with potential Earth application) acquired through participation in the ISS operations and laboratory missions.	Ind-1. Number of Canadian missions/solutions/instruments flown on ISS. Ind-2. Percentage of Canadian missions/solutions/instruments flown on ISS that met their mission requirements.	T-1. 10 T-2. 100%
R-2. Canada, a well-positioned partner, influences the ISS program direction.	Ind-1. Number of CSA's participation in ISS program boards and panels.	T-1. 67

**Budgetary Financial Resources – Sub-Program Level (in dollars)**

2014–15 Planned Spending	2015–16 Planned Spending	2016–17 Planned Spending
58,851,233	82,244,840	81,404,885

**Human Resources (Full-Time Equivalent—FTE) – Sub-Program Level**

2014–15	2015–16	2016–17
98.8	95.0	95.0

**Additional Planning Highlights for the Sub-Program International Space Station :**  
[HTTP://WWW.ASC-CSA.GC.CA/ENG/PUBLICATIONS/RP.ASP#RP](http://www.asc-csa.gc.ca/eng/publications/rp.asp#rp)

**1.2.1.1 Sub-Sub-Program – International Space Station Assembly and Maintenance Operations:** This Sub-Sub-Program includes the provision and operation of the Canadian Mobile Servicing System (MSS), composed of three Canadian robots – Canadarm2, Dextre and the Mobile Base System. MSS operations and maintenance services are conducted by Canadian or foreign astronauts on board the International Space Station (ISS) and by ground controllers and engineers located in established facilities at the Canadian Space Agency (CSA) and the National Aeronautics and Space Administration (NASA) – Johnson Space Center. This Sub-Sub-Program also includes the provision of specialized MSS training, systems engineering and software services, flight procedures development as well as the facility infrastructure necessary to operate the MSS through its life cycle. This Sub-Sub-Program is necessary to fulfill Canada's ongoing commitment to the international partnership to assemble and maintain the ISS, a legally binding obligation under the Canadian *Civil International Space Station Agreement Implementation Act*.

Sub-Sub-Program Expected Result	Performance Indicator	Target
R-1. The Canadian contribution (Mobile Services System) meets the planned operational requirements identified in the ISS Increment Definition Requirements Document (IDRD) in accordance with the Intergovernmental Agreement (IGA) and the NASA/CSA MOU.	Ind-1. Percentage of operational requirements fulfilled.	T-1. 100%

**Budgetary Financial Resources – Sub-Sub-Program Level (in dollars)**

2014–15 Planned Spending	2015–16 Planned Spending	2016–17 Planned Spending
53,037,468	70,258,600	69,416,480

**Human Resources (Full-Time Equivalent—FTE) – Sub-Sub-Program Level**

2014–15	2015–16	2016–17
83.2	80.1	80.1

**1.2.1.2 Sub-Sub-Program – International Space Station Utilization:** This Sub-Sub-Program encompasses the implementation of scientific, operational, medical and technological studies in specific areas, such as life sciences, radiation, material or fluid sciences, to be conducted aboard the International Space Station (ISS) by Government of Canada (GoC) organizations, academia or the private sector. This ISS offers them the advantages of an orbiting platform with human presence and prolonged microgravity exposure. This Sub-Sub-Program is necessary for testing novel technologies and conducting scientific studies in the unique environment of the ISS, leading to a better understanding of long-duration space missions and to potential terrestrial benefits. This Sub-Sub-Program is performed in collaboration with GoC organizations and foreign space agencies. This collaborative effort is captured under contracts and/or international partnership agreements.

<b>Sub-Sub-Program Expected Results</b>	<b>Performance Indicators</b>	<b>Targets</b>
R-1. Optimal utilization of the ISS.	Ind-1. Percentage of programmatic objectives achieved through ISS utilization. Ind-2. Number of Canadian stakeholders involved in activities on the ISS. Ind-3. Proportion of ISS resources used.	T-1. 80% T-2. 3 T-3. 60%

**Budgetary Financial Resources – Sub-Sub-Program Level (in dollars)**

<b>2014–15 Planned Spending</b>	<b>2015–16 Planned Spending</b>	<b>2016–17 Planned Spending</b>
5,813,765	11,986,240	11,988,405

**Human Resources (Full-Time Equivalent—FTE) – Sub-Sub-Program Level**

<b>2014–15</b>	<b>2015–16</b>	<b>2016–17</b>
15.6	14.9	14.9

**1.2.2 Sub-Program – Exploration Missions and Technology:** This Sub-Program encompasses the development and use of astronomy and planetary missions as well as the development of advanced exploration technologies. This Sub-Program is necessary as it contributes valued Canadian signature technologies to international space exploration endeavours and generates a better understanding of the universe, the solar system and our home planet. It could also lead to technology transfers for terrestrial benefits. This Sub-Program provides Canadian industry and academia with unique opportunities through their participation in international space exploration initiatives. This Sub-Program is performed in collaboration with foreign space agencies, Government of Canada (GoC) organizations and through CSA participation in international groups, such as the International Space Exploration Coordination Group. This collaborative effort takes shape under contracts and/or international partnership agreements.

<b>Sub-Program Expected Results</b>	<b>Performance Indicators</b>	<b>Targets</b>
R-1. Technological know-how acquired through Space Exploration endeavours (Astronomy and Planetary).	Ind-1. Proportion of CSA's missions/solutions/instruments that met their mission performance requirements at acceptance review and/or at commissioning.	T-1. 1
R-2. Canada maintains a strategic positioning which supports its capacity to influence space exploration missions and decision making process in key international space exploration forums.	Ind-1. Number of CSA's sponsored Highly Qualified Personnel (HQP) nominated on International Space Exploration decision bodies.	T-1. 8
R-3. CSA's participation in space exploration missions provides access to scientific data about the Solar system and the Universe.	Ind-1. Number of CSA's sponsored astronomy and planetary missions' providing data to Canadian scientific community.	T-1. 4

**Budgetary Financial Resources – Sub-Program Level (in dollars)**

2014–15 Planned Spending	2015–16 Planned Spending	2016–17 Planned Spending
33,508,940	22,589,210	13,224,070

**Human Resources (Full-Time Equivalent—FTE) – Sub-Program Level**

2014–15	2015–16	2016–17
67.1	63.3	63.3

**Additional Planning Highlights for the Sub-Program Exploration Missions and Technology:** [HTTP://WWW.ASC-CSA.GC.CA/ENG/PUBLICATIONS/RP.ASP#RP](http://www.asc-csa.gc.ca/eng/publications/rp.asp#rp)

**1.2.2.1 Sub-Sub-Program – Space Astronomy Missions:** This Sub-Sub-Program encompasses the definition, design, technology development, implementation and use of Canadian scientific instruments and signature technologies made available to Canadian and international space astronomy missions. This Sub-Sub-Program is necessary to perform space astronomy investigations and generate data and new knowledge about the universe. This Sub-Sub-Program is performed in collaboration with foreign space agencies, Government of Canada (GoC) organizations and through consultations with the Canadian astronomical community. This collaborative effort takes shape under contracts and/or international partnership agreements.

Sub-Sub-Program Expected Result	Performance Indicator	Target
R-1. Canadian know-how and expertise allow Canada to lead or participate in international space astronomy missions.	Ind-1. Number of technological and scientific solutions being developed by the CSA in the context of astronomy missions.	T-1. 1

**Budgetary Financial Resources – Sub-Sub-Program Level (dollars)**

2014–15 Planned Spending	2015–16 Planned Spending	2016–17 Planned Spending
11,367,365	5,967,120	3,856,440

**Human Resources (Full-Time Equivalent—FTE) – Sub-Sub-Program Level**

2014–15	2015–16	2016–17
14.3	13.6	13.6

**1.2.2.2 Sub-Sub-Program – Planetary Missions:** This Sub-Sub-Program encompasses the definition, design, technology development, implementation and use of Canadian scientific instruments and signature technologies made available to international exploration missions. The Sub-Sub-Program is necessary to reach exploration destinations such as planets and asteroids or new exploration platforms to conduct planetary science investigations, to generate data and new knowledge and to conduct engineering and/or planetary resource management activities. This Sub-Sub-Program is performed in collaboration with the international space exploration community, Government of Canada (GoC) organizations and foreign space agencies. This collaborative effort takes shape under contracts and/or international partnership agreements.

<b>Sub-Sub-Program Expected Result</b>	<b>Performance Indicator</b>	<b>Target</b>
R-1. Canadian know-how and expertise allow Canada to participate in planetary exploration missions.	Ind-1. Number of technological and scientific solutions being developed by the CSA in the context of planetary missions.	T-1. 1

**Budgetary Financial Resources – Sub-Sub-Program Level (in dollars)**

<b>2014–15 Planned Spending</b>	<b>2015–16 Planned Spending</b>	<b>2016–17 Planned Spending</b>
12,626,310	4,480,045	2,418,610

**Human Resources (Full-Time Equivalent—FTE) – Sub-Sub-Program Level**

<b>2014–15</b>	<b>2015–16</b>	<b>2016–17</b>
12.7	12.1	12.1

**1.2.2.3 Sub-Sub-Program – Advanced Exploration Technology Development:** This Sub-Sub-Program includes the development of advanced Canadian signature technologies to be used in potential astronomy and planetary missions that could be destined for the Moon, Mars, asteroids or other celestial bodies. This Sub-Sub-Program is necessary to shape or determine the nature of Canada’s contribution to potential international exploration and astronomy missions and could lead to spin-offs. In addition, the Sub-Sub-Program includes terrestrial deployments in analogue sites that offer geological similarities with Martian or Lunar surfaces, where this technology and its operational aspects are being tested and where exploration-related science is conducted for proof of concepts. This Sub-Sub-Program is performed in collaboration with foreign space agencies and Government of Canada (GoC) organizations and through the Canadian Space Agency participation in international groups, such as the International Space Exploration Coordination Group. This collaborative effort takes shape under contracts and/or international partnership agreements.

<b>Sub-Sub-Program Expected Result</b>	<b>Performance Indicator</b>	<b>Target</b>
R-1. Maturing science, technology and operational solutions for planning and strategic positioning purposes.	Ind-1. Number of science, technology and operational solutions that are under development in conformity with the orientations and conclusions of the Canadian Space Exploration strategic plan.	T-1. 9

**Budgetary Financial Resources – Sub-Sub-Program Level (in dollars)**

<b>2014–15 Planned Spending</b>	<b>2015–16 Planned Spending</b>	<b>2016–17 Planned Spending</b>
9,515,265	12,142,045	6,949,020

**Human Resources (Full-Time Equivalent—FTE) – Sub-Sub-Program Level**

<b>2014–15</b>	<b>2015–16</b>	<b>2016–17</b>
40.0	37.6	37.6

**1.2.3 Sub-Program – Human Space Missions and Support:** This Sub-Program encompasses all activities required to recruit, develop, train and maintain a healthy and highly-qualified Canadian astronaut corps capable of participating in space exploration missions. It also includes all activities directed at mitigating health risks associated with those missions, such as the development of advanced technologies to be used in support of human space missions. This Sub-Program is necessary to generate specialized knowledge in fields that sustain human space flights, such as life sciences and space medicine. Furthermore, by exploring technological solutions to the various challenges of human space flight, this Sub-Program could contribute to alternate healthcare delivery mechanisms for terrestrial applications. This Sub-Program is performed with Government of Canada (GoC) organizations and foreign space agencies. This collaborative effort is formalized under contracts and/or international partnership agreements.

Sub-Program Expected Result	Performance Indicator	Target
R-1. Human space flight generates “unique” health and life sciences knowledge, and technological know-how to sustain life and mitigate health risk during long-duration space flight.	Ind-1. Number of activities that lead to health risk mitigation strategies, technologies and/or countermeasures.	T-1. 16

**Budgetary Financial Resources – Sub-Program Level (in dollars)**

2014–15 Planned Spending	2015–16 Planned Spending	2016–17 Planned Spending
4,226,190	4,955,355	4,954,355

**Human Resources (Full-Time Equivalent—FTE) – Sub-Program Level**

2014–15	2015–16	2016–17
13.6	13.0	13.0

**Additional Planning Highlights for the Sub-Program Human Space Missions and Support:** [HTTP://WWW.ASC-CSA.GC.CA/ENG/PUBLICATIONS/RP.ASP#RP](http://www.asc-csa.gc.ca/eng/publications/rp.asp#rp)

**1.2.3.1 Sub-Sub-Program – Astronaut Training and Missions:** This Sub-Sub-Program encompasses activities associated with all phases of an astronaut career from recruitment to retirement, including space missions. This Sub-Sub-Program includes the management of National Astronaut Recruitment Campaigns; the implementation of individualized astronaut career management plan; the implementation of basic, advanced and mission-specific training; collateral duties assignment; space mission negotiations and assignment; as well as all the logistical, administrative and operational support activities in the pre-flight, in-flight and post-flight periods. This Sub-Sub-Program is necessary to live and work in a space environment and in order to further our understanding of human behaviour and health in space, and to conduct experiments and collect space-based scientific data useful to the science community. This Sub-Sub-Program is performed with Government of Canada (GoC) organizations and foreign space agencies. This collaborative effort is formalized under contracts and/or international partnership agreements.



<b>Sub-Sub-Program Expected Result</b>	<b>Performance Indicator</b>	<b>Target</b>
R-1. Canadian astronauts Corps is ready to assume any responsibilities on an expedition to the International Space Station (ISS).	Ind-1. Number of astronaut activities undertaken in preparation for eventual ISS missions' assignments.	T-1. 4

**Budgetary Financial Resources – Sub-Sub-Program Level (in dollars)**

<b>2014–15 Planned Spending</b>	<b>2015–16 Planned Spending</b>	<b>2016–17 Planned Spending</b>
2,583,515	2,701,680	2,701,680

**Human Resources (Full-Time Equivalent—FTE) – Sub-Sub-Program Level**

<b>2014–15</b>	<b>2015–16</b>	<b>2016–17</b>
9.5	9.1	9.1

**1.2.3.2 Sub-Sub-Program – Operational Space Medicine:** This Sub-Sub-Program delivers operational and clinical healthcare activities during all phases of basic, advanced and mission-specific training as well as during the pre-flight, in-flight and post-flight periods. It also promotes and ensures the physical, mental, social well-being and safety of Canadian astronauts. This Sub-Sub-Program is necessary to ascertain the overall health of Canadian astronauts and to monitor long-term health status. This Sub-Sub-Program is performed with Government of Canada (GoC) organizations and foreign space agencies. This collaborative effort is formalized under contracts and/or international partnership agreements.

<b>Sub-Sub-Program Expected Results</b>	<b>Performance Indicators</b>	<b>Targets</b>
R-1. Astronauts' health is optimized to meet mission requirements.	Ind-1. Number of active astronauts medically certified for ISS assignment and duties.	T-1. 2
R-2. Astronauts' long-term health is monitored following their active careers.	Ind-1. Percentage of eligible astronauts participating in their long-term health monitored.	T-1. 25%

**Budgetary Financial Resources – Sub-Sub-Program Level (in dollars)**

<b>2014–15 Planned Spending</b>	<b>2015–16 Planned Spending</b>	<b>2016–17 Planned Spending</b>
961,650	1,035,650	1,035,650

**Human Resources (Full-Time Equivalent—FTE) – Sub-Sub-Program Level**

<b>2014–15</b>	<b>2015–16</b>	<b>2016–17</b>
1.3	1.3	1.3

**1.2.3.3 Sub-Sub-Program – Health and Life Sciences:** This Sub-Sub-Program encompasses space medicine and life sciences activities that explore health care delivery and life sustainability solutions on future long-duration exploration missions. These benefits are targeted at the space exploration community, mainly academia and partnering agencies. This Sub-Sub-Program develops collaborative projects with academia and industry. It uses analog sites that offer relevant similarities with the harsh environment of space, and where exploration-related medical and life science studies are conducted. This Sub-Sub-Program is necessary to identify, understand, mitigate or eliminate health risks associated with human space flights, and to understand and address the needs of humans during those missions. The solutions could also be offered as alternative healthcare delivery mechanisms for terrestrial benefits through the transfer of space technology. This Sub-Sub-Program is performed with Government of Canada (GoC) organizations and foreign space agencies. This collaborative effort is formalized under contracts and/or international partnership agreements.

<b>Sub-Sub-Program Expected Result</b>	<b>Performance Indicators</b>	<b>Targets</b>
R-1. Performance of space life sciences studies with potential benefits for Canadians and to enable human exploration of space.	Ind-1. Number of studies aiming at the development of countermeasures and enhanced human performance and life support. Ind-2. Number of partnerships addressing potential terrestrial healthcare solutions.	T-1. 6 T-2. 2

**Budgetary Financial Resources – Sub-Sub-Program Level (in dollars)**

<b>2014–15 Planned Spending</b>	<b>2015–16 Planned Spending</b>	<b>2016–17 Planned Spending</b>
681,025	1,218,025	1,217,025

**Human Resources (Full-Time Equivalent—FTE) – Sub-Sub-Program Level**

<b>2014–15</b>	<b>2015–16</b>	<b>2016–17</b>
2.8	2.6	2.6

**Planning and Reporting Continuity**

RPP 2013–14 and DPR 2012–13:

<http://www.asc-csa.gc.ca/asc/eng/resources/publications/default.asp#parliament>

To learn more about space science and exploration, go to:

<http://www.asc-csa.gc.ca/asc/eng/sciences/default.asp> and,

<http://www.asc-csa.gc.ca/asc/eng/exploration/default.asp>

### 1.3 – Program - Future Canadian Space Capacity (FCSC)

**Description:** This Program attracts, sustains and enhances the nation's critical mass of Canadian space specialists, fosters Canadian space innovation and know-how, and preserves the nation's space-related facilities capability. In doing so, it encourages private-public collaboration that requires a concerted approach to future space missions. This Program secures the nation's strategic and ongoing presence in space in the future and to preserve Canada's capability to deliver internationally renowned space assets for future generations. It is targeted at Canadian academia, industry and youth, as well as users of Canadian space solutions (Government of Canada (GoC) organizations) and international partners. This Program is conducted with the participation of funding agencies, GoC organizations along with government facilities and infrastructure, foreign space agencies, not-for-profit organizations and provincial governments. This collaborative effort is formalized under contracts or national and international partnership agreements. This Program is funded through the Class Grant and Contribution Program to support research, awareness and learning in Space Science and Technology.

#### Budgetary Financial Resources – Program Level (in dollars)

2014–15 Main Estimates	2014–15 Planned Spending	2015–16 Planned Spending	2016–17 Planned Spending
62,772,518	62,772,518	64,627,670	66,165,065

#### Human Resources (Full-Time Equivalent—FTE) – Program Level (in dollars)

2014–15	2015–16	2016–17
92.4	89.4	89.4

*Note: There is no correlation between the annual fluctuations of the budget and the number of full-time equivalents. The budget variations are mainly due to the projects' development cycle and their associated cash flow requirements (re-profiling + additional funds RCM). Consequently, these do not entail any adjustment on the annual number of full-time equivalents under the CSA A-Base budget.*

*Note: Students are now included in the FTE calculation at all program levels.*

1.3 FCSC Program Expected Result	Performance Indicators	Targets * and Dates to be achieved
R-1. Canada holds a space community (academia, industry and government) able to contribute to the sustained and strategic Canadian use of space.	Ind-1. Number of FTE in the Canadian space sector. Ind-2. Monetary value of the Canadian space sector R&D investments. Ind-3. Degree of match between workforce supplied and industry workforce requirements.	T-1 3,500 T-2 \$ 60 million. T-3. Benchmark to be established.

\*Targets at all levels of the PAA are to be achieved by March 31st, 2014, unless specified otherwise.

**PLANNING HIGHLIGHTS FOR THE PROGRAM FUTURE CANADIAN SPACE CAPACITY**

- Using a mission and technology roadmap, the CSA is identifying technology priorities in order to reduce uncertainties of future missions of Canadian interest as well as promising generic technologies that could enhance Canada's capabilities. The CSA's Space Technology Development Program (STDP) will make demands on industry and research organizations to work on these technology priorities. This support will create industry responsiveness to future market demands and the maintenance of global competitiveness in areas of Canadian strengths including the development of novel concepts and products, and improving industrial processes.
- Through the participation in European Space Agency (ESA) programs, the CSA will continue to support Canadian companies' involvement in the development of European Earth Observation advanced space-borne instruments and sub-systems, and user-oriented applications. The objectives of this participation are two-fold: ensure that Canadians have access to ESA space data and position Canadian industry and the scientists in future European space scientific and technological developments related to planetary exploration, life and physical science, and telecommunications programs.
- Following the completion of the stratospheric balloon launch base and the successful qualification flights in 2013, the CSA will support the scientific balloon Strato-Science campaign in 2014. Instruments from several Canadian universities and organizations will benefit from these flight opportunities.
- Ten of the eleven university projects funded through the Flight for the Advancement of Science and Technology Announcement of Opportunity 2011 will fly on suborbital platforms and/or space-related instruments in order to validate their associated technologies or generate scientific data.
- The CSA will continue to promote technology transfer of space technologies to the Canadian industry through licensing and other intellectual property management activities enhancing Canada's industrial competitiveness. The CSA will indirectly contribute to innovation by facilitating research collaborations between academia and industry.
- The David Florida Laboratory (DFL) will return to its full operational mode to provide environmental space qualification services for the assembly, integration and testing of spacecraft systems to CSA's programs as well as national and international clients.

**1.3.1 Sub-Program – Space Expertise and Proficiency:** This Sub-Program includes the development and enhancement of Canada’s space capacity. This Sub-Program supports research in private or public organizations and sustains the development of Highly Qualified Personnel (HQP) in science and engineering. We encourage scientifics and engineers to perform relevant development activities in space science and technology, and to develop their know-how by offering them financial support to sustain their research project and access to infrastructure devoted to world class research and training, among which fast execution and small size missions offer frequent flight opportunity. This Sub-Program is necessary to create and sustain a pool of space expertise and proficiency that will form the next generation of space professionals and workers and to provide solutions for future Canadian space endeavours. This Sub-Program is delivered with the participation of funding agencies, Government of Canada (GoC) organizations, foreign space agencies and not-for-profit organizations. This collaborative effort is formalized under national and international partnership agreements or contracts. This Sub-Program is funded through the Class Grant and Contribution Program to support research, awareness and learning in Space Science and Technology.

<b>Sub-Program Expected Results</b>	<b>Performance Indicators</b>	<b>Targets</b>
R-1. A pool of space experts and professionals is sustained and enhanced.	Ind-1. Number of scientists and engineers involved through opportunities provided by the program.	T-1. Based on benchmark established in 2013–14.
R-2. Research is conducted in priority areas.	Ind-1. Number of research projects conducted through opportunities provided by the program.	T-1. Based on benchmark established in 2013–14.
R-3. Advancement of S&T solutions for future space initiative.	Ind-1. Number of peer-reviewed papers, reports and conference proceedings acknowledging CSA support.	T-1. Based on benchmark established in 2013–14.

**Budgetary Financial Resources – Sub-Program Level (in dollars)**

<b>2014–15 Planned Spending</b>	<b>2015–16 Planned Spending</b>	<b>2016–17 Planned Spending</b>
12,234,555	10,269,265	10,985,100

**Human Resources (Full-Time Equivalent—FTE) – Sub-Program Level**

<b>2014–15</b>	<b>2015–16</b>	<b>2016–17</b>
44.1	42.2	42.2

**Additional Planning Highlights for the Sub-Program Space Expertise and Proficiency:** [HTTP://WWW.ASC-CSA.GC.CA/ENG/PUBLICATIONS/RP.ASP#RP](http://www.asc-csa.gc.ca/eng/publications/rp.asp#rp)

**1.3.2 Sub-Program – Space Innovation and Market Access:** This Sub-Program includes the development and enhancement of Canada’s space capacity through innovation and market positioning. Through leading-edge technology and facilities, and international arrangements, the Sub-Program improves Canadian industrial competitiveness so that space users are continuously well served through constantly improving optimal and cost-effective space solutions. This Sub-Program is necessary to foster entrepreneurship that enhances Canadian industry’s international positioning on commercial and government markets. This Sub-Program is performed with industry and is formalized under contracts or contributions. Foreign space agencies are partners in this endeavour, so that Canadian industry can access foreign markets through innovation or international arrangements.

<b>Sub-Program Expected Results</b>	<b>Performance Indicators</b>	<b>Targets</b>
R-1. Through innovation and international arrangements, Canadian industry is well positioned on international commercial and government markets.	Ind-1. Number of Canadian companies exporting space-related goods and services. Ind-2. Value of Canadian space-related goods and services exported.	T-1. 50 T-2. \$1.7 billion
R-2. Enhanced Canadian industry competitiveness.	Ind-1. Number of Canadian companies successfully obtaining national/international work orders.	T-1. 100

**Budgetary Financial Resources – Sub-Program Level (in dollars)**

<b>2014–15 Planned Spending</b>	<b>2015–16 Planned Spending</b>	<b>2016–17 Planned Spending</b>
44,426,788	48,253,055	49,074,615

**Human Resources (Full-Time Equivalent—FTE) – Sub-Program Level**

<b>2014–15</b>	<b>2015–16</b>	<b>2016–17</b>
15.4	14.6	14.6

**Additional Planning Highlights for the Sub-Program Space Innovation and Market**

**Access:** [HTTP://WWW.ASC-CSA.GC.CA/ENG/PUBLICATIONS/RP.ASP#RP](http://www.asc-csa.gc.ca/eng/publications/rp.asp#rp)

**1.3.2.1 Sub-Sub-Program – International Market Access:** This Sub-Sub-Program consists in facilitating foreign market access by the Canadian space industry through negotiating, implementing and managing special international arrangements. For example, in return for Canadian Space Agency (CSA) monetary contributions to the European Space Agency (ESA) under the long-lasting ESA-Canada Agreement, Canadian industry obtains some of the contracts awarded by ESA; thus penetrating a market that would otherwise be limited to Europeans. This Sub-Sub-Program is necessary as it results in increased access to foreign government market share for Canadian industry. This Sub-Sub-Program is delivered through concluding international agreements, trade measures, or other mutually beneficial arrangements that create a favourable political or trade environment that facilitates access to global markets.

<b>Sub-Sub-Program Expected Results</b>	<b>Performance Indicators</b>	<b>Targets</b>
R-1. Canadian investments through the ESA Agreement allow Canadian industry to access the institutional European market.	Ind-1. Canadian industrial return coefficient (Ratio between the actual value of contracts awarded by ESA to Canadian organizations and the ideal value of contracts awarded by ESA to Canadian organizations).	T-1. 96% or higher.
R-2. The Canadian industry has access to flight opportunities for its space technologies/components.	Ind-1. Number of technologies or components developed by Canadian industry which have been space qualified and/or have acquired flight heritage through Canada's participation in ESA programs.	T-1. 5 opportunities over the duration of the agreement (2012–19).

**Budgetary Financial Resources – Sub-Sub-Program Level (in dollars)**

<b>2014–15 Planned Spending</b>	<b>2015–16 Planned Spending</b>	<b>2016–17 Planned Spending</b>
27,907,043	26,749,620	27,565,355

**Human Resources (Full-Time Equivalent—FTE) – Sub-Sub-Program Level**

<b>2014–15</b>	<b>2015–16</b>	<b>2016–17</b>
2.4	2.2	2.2

**1.3.2.2 Sub-Sub-Program – Enabling Technology Development:** This Sub-Sub-Program consists of technology development and demonstration activities that contribute to maintaining or developing a technological edge in promising fields, such as switches, batteries, launchers, antennas, solar panels, etc. This Sub-Sub-Program is necessary as the enabling (generic) technology developed reduces costs and technological risks on multiple mission types, enhances the efficiency or performance of already established space solutions, and facilitates the commercialization of new products through innovation. This Sub-Sub-Program is performed with industry and is formalized under contracts or contributions.

<b>Sub-Sub-Program Expected Result</b>	<b>Performance Indicator</b>	<b>Target</b>
R-1. Increased technological capability of Canadian industry.	Ind-1. Number of different technologies addressed.	T-1. 30

**Budgetary Financial Resources – Sub-Sub-Program Level (in dollars)**

<b>2014–15 Planned Spending</b>	<b>2015–16 Planned Spending</b>	<b>2016–17 Planned Spending</b>
16,519,745	21,503,435	21,509,260

**Human Resources (Full-Time Equivalent—FTE) – Sub-Sub-Program Level**

<b>2014–15</b>	<b>2015–16</b>	<b>2016–17</b>
13.1	12.4	12.4

**1.3.3 Sub-Program – Qualifying and Testing Services:** This Sub-Program consists of specialized activities and services for the assembly, integration, and testing of space hardware and involves space qualifying technology, sub-units, units or entire spacecraft developed by Canadian academic institutions, Government of Canada (GoC) organizations, and industry, as well as international partners and clients. This Sub-Program is necessary to ensure that mission-assigned technology and entire systems can safely and reliably meet the rigors of space and to demonstrate the suitability and effectiveness of new Canadian space technology for providing valuable contributions to space missions. This provides an effective base for increasing Canada's capability to participate in future space programs. This Sub-Program is delivered by the CSA's David Florida Laboratory on a fee-for-service basis.

Sub-Program Expected Results	Performance Indicators	Targets
R-1. Test results of space hardware prove to be reliable in demonstrating suitability for launch and space environment.	Ind-1. Percentage of client satisfaction towards the quality of the services provided.	T-1. 95% or more.

**Budgetary Financial Resources – Sub-Program Level (in dollars)**

2014–15 Planned Spending	2015–16 Planned Spending	2016–17 Planned Spending
6,111,175	6,105,350	6,105,350

**Human Resources (Full-Time Equivalent—FTE) – Sub-Program Level**

2014–15	2015–16	2016–17
32.9	32.6	32.6

**Additional Planning Highlights for the Sub-Program Qualifying and Testing Services:** [HTTP://WWW.ASC-CSA.GC.CA/ENG/PUBLICATIONS/RP.ASP#RP](http://www.asc-csa.gc.ca/eng/publications/rp.asp#rp)

**Planning and Reporting Continuity:**

RPP 2013–14 and DPR 2012–13:

<http://www.asc-csa.gc.ca/asc/eng/resources/publications/default.asp#parliament>

To learn more about enabling technology development, go to:

<http://www.asc-csa.gc.ca/eng/programs/default.asp>

To learn more about qualifying and testing services go to:

<http://www.asc-csa.gc.ca/asc/eng/dfi/default.asp>



## 1.4 – Program - Internal Services

**Description:** Internal Services are groups of related activities and resources that are administered to support the needs of programs and other corporate obligations of an organization. These groups are: Management and Oversight Services; Communications Services; Legal Services; Human Resources Management Services; Financial Management Services; Information Management Services; Information Technology Services; Real Property Services; Materiel Services; Acquisition Services; and Travel and Other Administrative Services. Internal Services include only those activities and resources that apply across an organization and not to those provided specifically to a program.

**Budgetary Financial Resources – Program Level (in dollars)**

2014–15 Main Estimates	2014–15 Planned Spending	2015–16 Planned Spending	2016–17 Planned Spending
46,179,765	46,179,765	43,570,805	43,338,230

**Human Resources (Full-Time Equivalent—FTE) – Program Level**

2014–15	2015–16	2016–17
262.0	248.0	248.0

*Note: Students are now included in the FTE calculation at all program levels.*

1.4 IS Program Expected Result	Performance Indicator	Target * and Date to be achieved
R-1. Internal Services provide an added value to CSA managers in the performance of their duties.	Ind-1. CSA's rating against MAF criteria based on Round 2013–14 assessment.	Acceptable ratings are reached or maintained.

\*Targets at all levels of the PAA are to be achieved by March 31st, 2014, unless specified otherwise.

**PLANNING HIGHLIGHTS FOR INTERNAL SERVICES**

**Improvements of Governance and Management**

- The implementation of the renewed CSA’s governance to ensure that stakeholders are consulted in the planning, development and implementation of new space policies, strategies and initiatives, and that the mechanisms are in place to provide clear oversight and accountability in its future investments.

## 2014-15 Report on Plans and Priorities

- The development of a 20-year strategic plan and the implementation of an investment plan in accordance with Treasury Board of Canada Secretariat's (TBS) policies on investment planning, acquired assets and management of projects.
- The development and implementation of recommendations from the Internal Audit on the Project Management Framework; and the development of the Project Management Methodology to standardize project management processes and practices.
- The implementation of the 2013–16 Integrated Corporate Human Resources Plan which integrates the Employment Equity strategies and specific planning for key positions in order to attract and retain a qualified workforce to continue delivering the CSA mandate.
- The implementation of a Space Data Management Framework to ensure an effective life cycle program from creation to disposition.

### **Ensuring Business Continuity**

- The ongoing management of information assets and information systems created by or for the CSA in order to guarantee secured access for decision making in conformity with Canadian regulations and to assure preservation for historical purposes.
- The implementation of the CSA's Departmental Security Plan (year 2) as required in the Policy on Government Security and the CSA's Emergency Management Plan as required by the *Emergency Management Act*.

### **Monitoring Performance**

- The ongoing implementation of a five-year Evaluation Plan as well as Performance Measurement Strategies applicable for all programs.
- The continuous monitoring of management action plans developed in response to audits and evaluations as well as third party recommendations.
- The ongoing implementation of the CSA Policy on internal control.

### **Planning and Reporting Continuity:**

RPP 2013–14 and DPR 2012–13:

<http://www.asc-csa.gc.ca/eng/publications/rp.asp>

## SECTION 3: SUPPLEMENTARY INFORMATION

### 3.1 FUTURE-ORIENTED STATEMENT OF OPERATIONS

The future-oriented condensed statement of operations presented in this subsection is intended to serve as a general overview of the Canadian Space Agency's (CSA) operations. The forecasted financial information on expenses and revenues are prepared on an accrual accounting basis to strengthen accountability and to improve transparency and financial management.

Because the future-oriented statement of operations is prepared on an accrual accounting basis and the forecast and planned spending amounts presented in other sections of this report are prepared on an expenditure basis, amounts will differ.

A more detailed future-oriented statement of operations and associated notes, including a reconciliation of the net costs of operations to the requested authorities, can be found on the CSA's website.

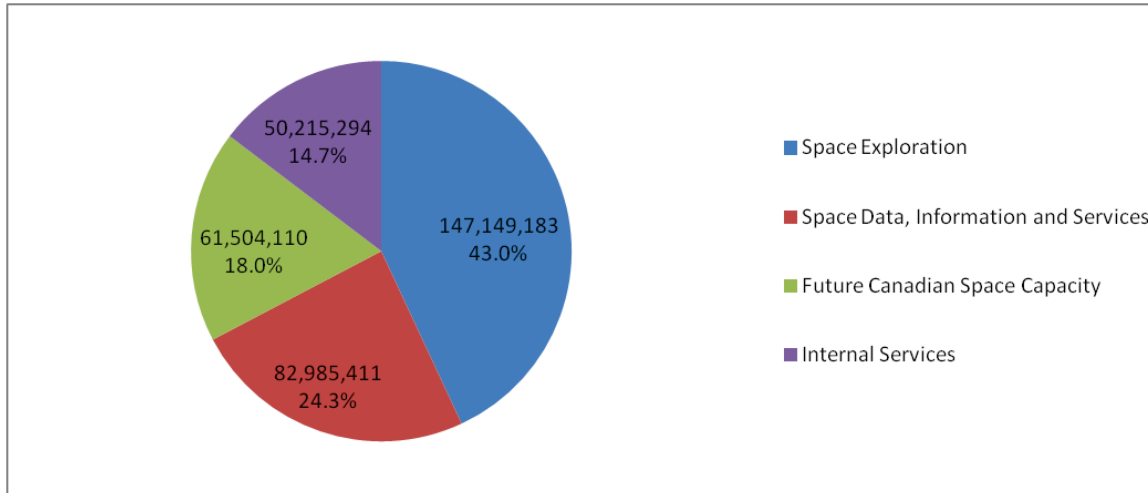
Information on the CSA's Future-Oriented Statement of Operations is at the following address: <http://www.asc-csa.gc.ca/eng/publications/default.asp#parliament>

#### **Future-Oriented Condensed Statement of Operations**

For the Year Ended March 31 (in dollars)

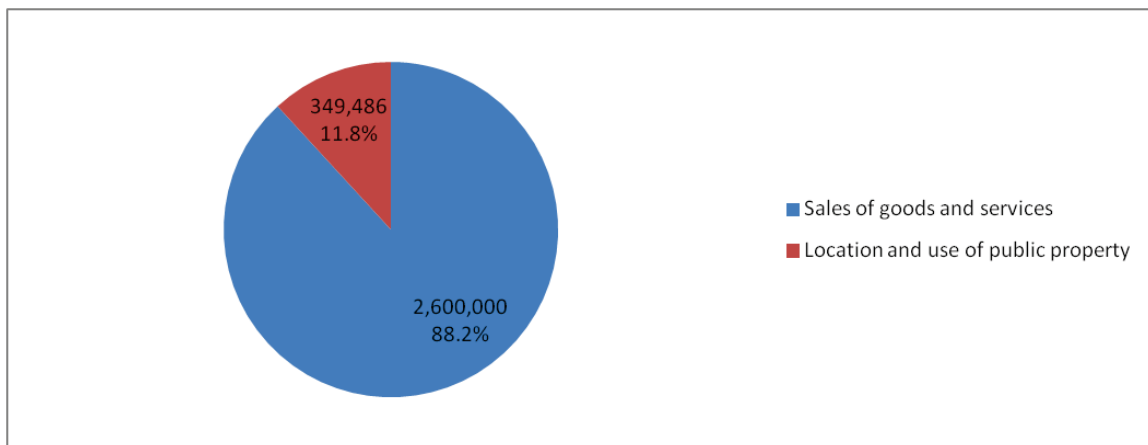
<b>Financial Information</b>	<b>Estimated Results 2013–14</b>	<b>Planned Results 2014–15</b>	<b>\$ Change</b>
Total expenses	330,178,114	341,853,998	11,675,884
Total revenues	-	-	-
Net cost of operations	330,178,114	341,853,998	11,675,884

**Expenses**



Total net expenses, estimated on an accrual accounting basis, are projected to be \$341,853,998 in 2014–15 and are virtually the same as estimated in 2013–14 (\$330,178,114) an increase of \$11,675,884. A significant portion of these expenses is broken down as follow: \$86,697,069 in professional and special services, \$77,702,883 in amortization and \$69,532,350 in salaries and fringe benefits. These expenses include planned spending presented in this Report on Plans and Priorities as well as expenses such as amortization, services provided without charge by other government departments, and severance benefits and vacation pay liability adjustments

**Revenues**



Total revenues are projected to be \$2,949,486 in 2014–15 which are mostly constituted of sales of goods and services. The CSA’s responsible revenues will be nil since the CSA has no authority regarding their disposition.

### 3.2 SUPPLEMENTARY INFORMATION TABLES

All electronic supplementary information tables found in the 2014–15 Report on Plans and Priorities can be found on the Canadian Space Agency’s website at: <http://www.asc-csa.gc.ca/eng/publications/rp.asp>

- Annex 1: Details on Transfer Payment Programs (TPPs)
- Annex 2: Upcoming Internal Audits and Evaluations over the next three fiscal years
- Annex 3: Status Report on Transformational and Major Crown Projects
- Annex 4: User Fees

### 3.3 TAX EXPENDITURES AND EVALUATIONS REPORT

The tax system can be used to achieve public policy objectives through the application of special measures such as low tax rates, exemptions, deductions, deferrals and credits. The Department of Finance publishes cost estimates and projections for these measures annually in the *Tax Expenditures and Evaluations*<sup>1</sup> publication. The tax measures presented in the *Tax Expenditures and Evaluations* publication are the sole responsibility of the Minister of Finance.

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<sup>1</sup> The *Tax Expenditures and Evaluations* publication is at the following address: <http://www.fin.gc.ca/purl/taxexp-eng.asp>

## SECTION 4: ORGANIZATIONAL CONTACT INFORMATION

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### 4.1 CONTACT INFORMATION

Canadian Space Agency  
Communications and Public Affairs  
Telephone: 450-926-4370  
Fax: 450-926-4352  
E-mail: [media@asc-csa.gc.ca](mailto:media@asc-csa.gc.ca)

## Endnotes

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- i. Selected Departmental Performance Reports for 2008–09 – Department of Industry, Department of Transport. Report of the Standing Committee on Public Accounts, September 2010, <http://www.parl.gc.ca/HousePublications/Publication.aspx?Mode=1&Parl=40&Ses=3&Language=E&DocId=4653561&File=0>.
- ii. Strengthening Parliamentary Scrutiny of Estimates and Supply. Report of the Standing Committee on Government and Operations Estimates, June 2012, <http://www.parl.gc.ca/HousePublications/Publication.aspx?DocId=5690996&Language=E&Mode=1&Parl=41&Ses=1>.
- iii. Whole-of-government framework, <http://www.tbs-sct.gc.ca/ppg-cpr/frame-cadre-eng.aspx>