



Space Technology Development Program

Part II

Key considerations when
responding to STDP
competitive processes

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Introduction

The Canadian Space Agency's (CSA) Space Technology Development Program (STDP) has been operating for over 20 years now, supported the development of well over 300 space related technologies with the recent addition of non-repayable contributions. This presentation will give an overview of this iconic program.





Agenda

- STDP Overview
 - Targetted outputs and outcomes
 - Funding mechanisms – Contracts and contributions
- Key considerations when responding to RFPs
 - End-to-end process
 - Point rated evaluation
 - Technical evaluation
 - Key takeaways
- Key considerations when responding to AOs
 - Basic R&D
 - End-to-end process
 - Eligibility
 - Point rated – review of evaluation criteria
 - Final selection
 - Key takeaways

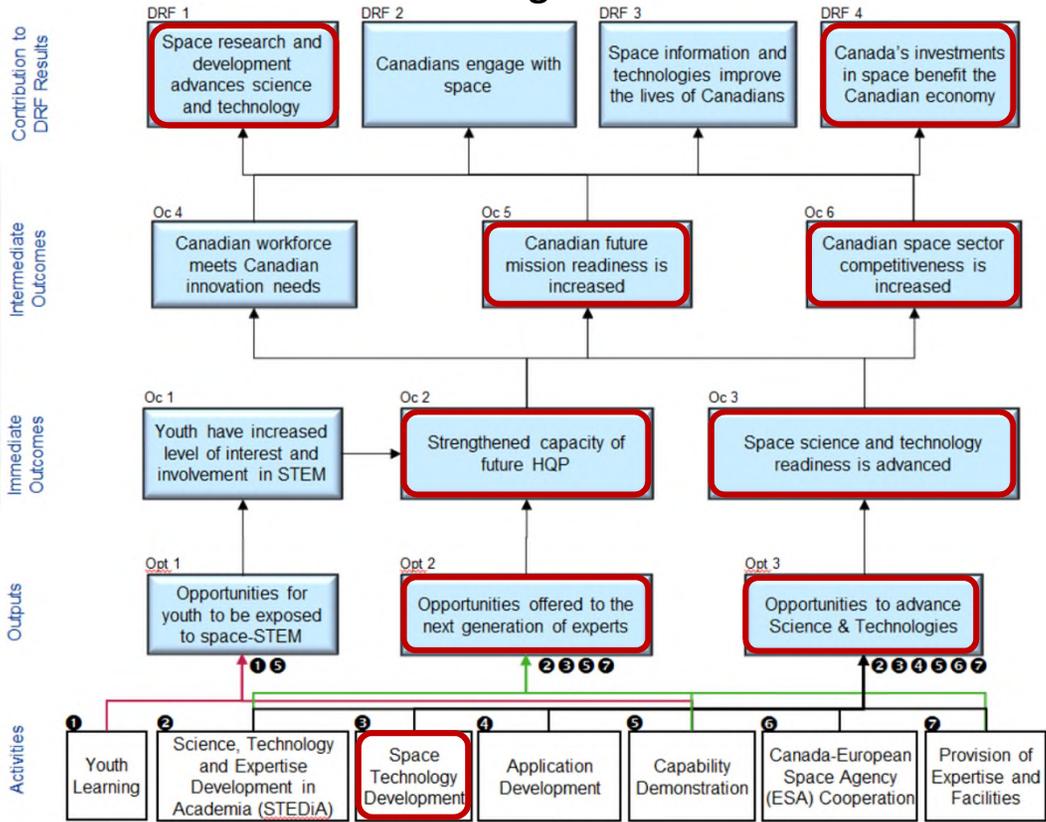


Overview

- STDP provides an established, recognized and centralized POC for CSA & Industry on technology development in priority areas
- STDP guarantees an identified (earmarked) long term budget for technology development
- It provides a consistent, coordinated, strategic, fair and transparent process
- Supports R&D through contracts and contributions
- STDP budget is chronically oversubscribed

STDP outputs and targeted outcomes

SCDP Logic Model





Program Objectives

- Stimulate industrial innovation on strategic technologies to reduce the technological uncertainties associated with potential Canadian space missions – *RFP/Contracts*
- To support the development of Canadian industrial capabilities in the area of space technologies for the purpose of increasing the commercial potential of Canadian space companies – *AO/Contributions*

Contracts vs Contributions

R&D Service Contract	Contribution
Fulfilment of CSA's needs	Industry's project
Acquisition of goods and services based on CSA specified requirements mostly driven by potential mission requirements (typically up to TRL 5)	R&D Support for pre-commercial activities up to TRL6. No acquisition of deliverables/license to IP by the CSA.
Invoiced at milestone completion (service fee with profit)	Quarterly claim for partial reimbursement of actual costs
Issued through PSPC Public Services and Procurement Canada	Issued and managed by CSA



Recent Contracts Funding and Statistics

CSA has issued **8** Requests for Proposals (RFP) in the last **5** years: (**From '15-'19: \$43M**)

RFP 9: March '15 – **\$14.9M**

- 36 proposals received
- 23 contracts awarded

RFP 10: May '15 – **\$5.25M**

- 15 proposals received
- 11 contracts awarded

RFP 12: Aug. '15 – **\$0.5M**

- Sole Source
- 1 contract awarded

RFP 13: July '16 – **\$2M**

- 2 proposals received
- 2 contracts awarded

RFP 14: April '17 – **\$10M**

- 21 proposals received
- 14 contracts awarded

RFP 15: July '17 – **\$3.3M**

- 4 proposals received
- 4 contracts awarded

RFP 17: Nov. '18. – **\$2.3M**

- 25 proposals received
- 13 contracts awarded

Next: June '19 – **\$4.75M**

- 5 technologies

CSA is targeting an annual RFP for potential missions with additional RFPs on a need basis for specific initiatives.



Contributions Funding and Statistics

CSA has issued 5 Announcements of Opportunities (AO) in the last 6 years:

AO 1: December 2012 – **\$1M** (Pilot AO)

AO 2: June 2014 – **\$13M**

- 82 proposals received
- 38 signed agreements
- Total demand : **\$22M**

AO 4: July 2017 – **\$19M**

- 78 proposals received
- 34 signed agreements
- Total demand: **\$55.5M**

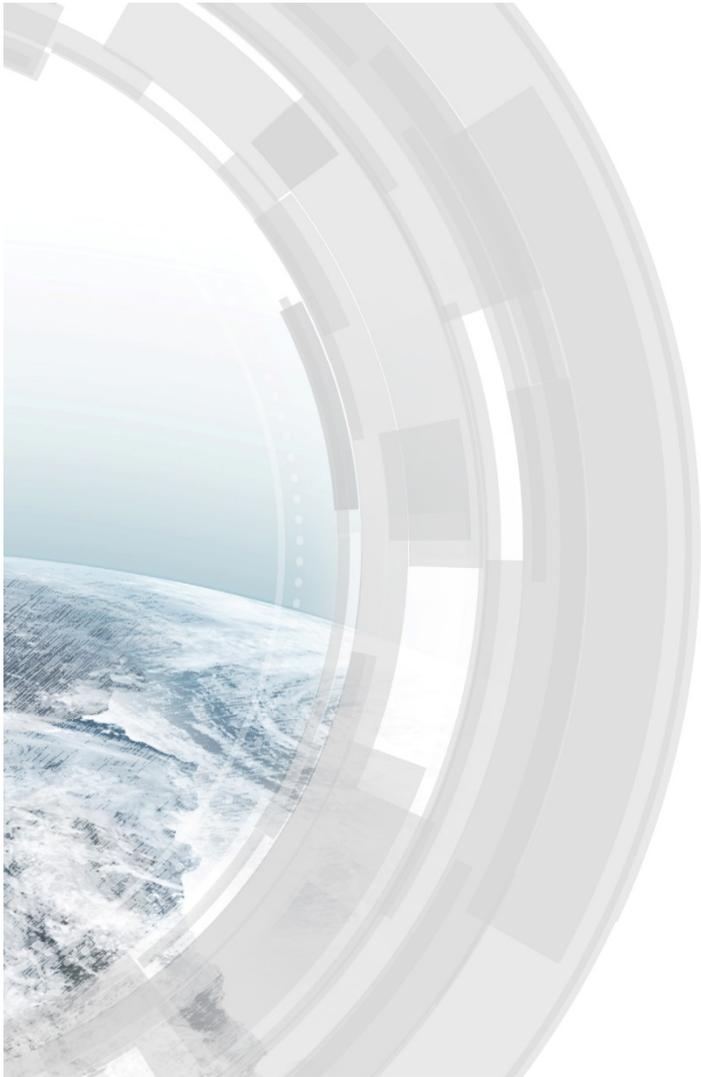
AO 3: June 2015 – **\$15M**

- 51 proposals received
- 16 signed agreements
- Total demand: **\$39M**

AO 5: Oct 2018 – **\$15M**

- 75 proposals received
- 29 signed agreements
- Total demand: **\$42.5M**

CSA is targeting an annual Announcement of Opportunity with selected projects starting around the beginning of the government's fiscal year (April).



Key considerations - Responding to STDP competitive processes - RFPs (contracts)



Contracts

Challenge the space industry on strategic technologies to reduce the technological unknowns associated with potential Canadian space missions

- STDP Contract activities are typically for TRL 2-5



End to end process

1. Internal consultation and identification of desired technologies - aligned with identified expected priority missions
 - Duration : ~4 months
2. Posting of Advanced Notice (Letter of Interest)
 - Duration : ~1 month
3. Statement of Work and RFP preparation
 - Duration : ~2 months
4. RFP posting
 - Duration : ~6-8 weeks
5. Point rated evaluation
 - Duration : ~1-2 months
6. Contract award
 - Duration : ~2-4 weeks



Letter of interest (Advanced Notice)

- A heads-up to potential bidders for upcoming RFP
- Contains expected SOWs, timeline and budget
- Opportunity to provide early inputs



RFP Process

- RFP process is managed through **Public Services and Procurement Canada** (PSPC)
- Conditions
 - Canadian content (nominally 80%)
 - Controlled goods
 - Language used: must vs should
(mandatory requirements vs target/goal)
 - Maximum budget
 - Fixed price
 - Timeline
- Format – 2 bids
 - Technical & management
 - Financial



RFP Process (cont'd)

- All questions/comments must be addressed to PSPC
 - Comments / questions are encouraged
 - Clarifications and modifications can be made during the posting and are communicated to all
 - Non-conformance with mandatory requirements or budget limit will lead to declaring the bid non-responsive
- PSPC screens all bids
 - Only the technical bids are sent to CSA for the technical evaluation
 - Only the winning financial bid is sent to CSA for validation of proposed effort



Point Rated Evaluation

- Predetermined criteria for objective and fair selection
- Typical criteria:
 1. Understanding the Technology
 2. Team Experience and Capability
 3. Implementation Plan
 4. Feasibility Of Proposed Solution in Meeting the Technical Objectives



Point Rated Evaluation (cont'd)

- Technical evaluation conducted by CSA
- Pricing score is added to the technical score by PSPC
 - Up to 10 points (over 100) are allocated for bids at 80% of maximum funding.
- Global score determines the winner



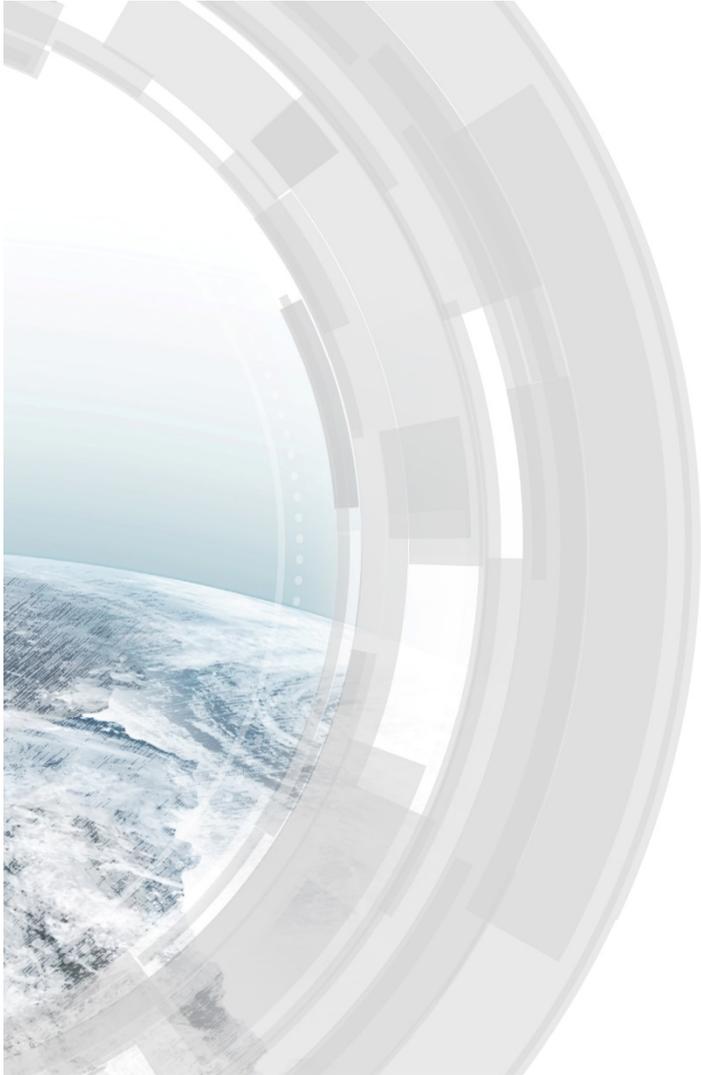
Technical Evaluation

- Each proposal is evaluated by 3+ evaluators individually
- For each proposal, ratings are discussed through a consensus review meeting
- Same core team evaluates all proposals for a given SOW/technology
- Other Departments' experts are sometimes involved
- Clarification questions are allowed (by evaluators), but cannot lead to bid repair
- Based on evidence provided in proposal only



Key Takeaways

- The proposal is not formally limited (by page number) but should be concise, yet complete (with evidence)
- Clarification questions and comments are always welcome during posting as they may avoid rejecting proposals or re-posting a RFP
- Evaluation results are provided proactively and debriefs are available upon request



Key considerations - Responding to STDP competitive processes - AOs (contributions)



Contributions – Basic R&D

- Justification is required for non-repayable contributions
- Eligible projects supported must comply with the following definition for basic R&D:

"Any **pre-commercial** technology activities that are carried out to resolve unknowns regarding the feasibility of a technology in the space sector."

- This limits activities to TRL6 and under



End to end process

Using AO 5.1 as reference

1. Advance Notice posted on CSA website
 - Duration : ~3 weeks, ~2-4 months before AO
 - Comments provided are reviewed and considered for incorporation in the AO
2. AO posted on CSA website
 - Duration : ~6-8 weeks
 - Questions and answers posted on the AO page
3. Eligibility screening (as per section 5.1 of the AO)
 - Represents an eligible recipient as defined in Section 3.1
 - Represents an eligible project as defined in Sections 3.2, 3.3 and 3.4
 - Meets the basic R&D definition in Section 3.5
 - Meets program funding provisions in Section 6.1



End to end process

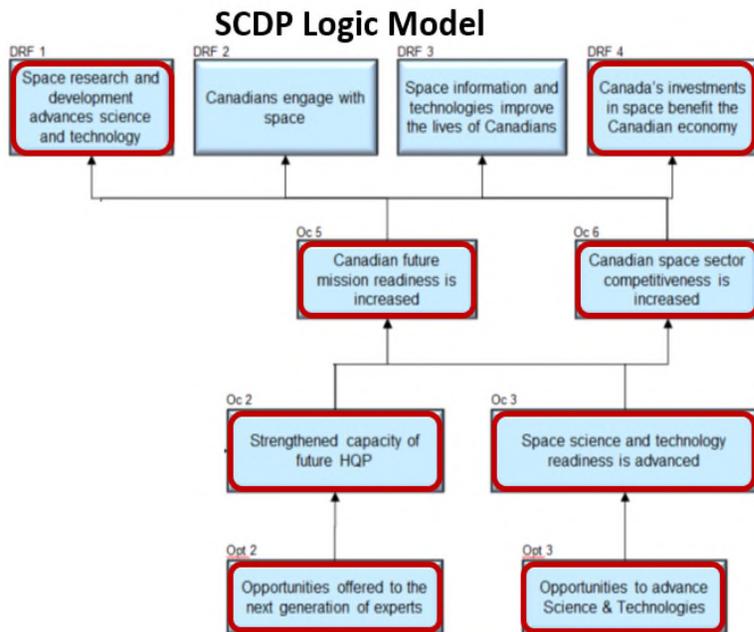
4. Point rated evaluation (as per sections 5.2 and 5.3 of the AO)
 - Innovation and market need
 - Project feasibility, resources and risk assessment
 - Outcomes and benefits to Canada
5. Final selection of projects by review committee based on the priorities of the Government of Canada and the CSA (as per section 5.3 of the AO)
6. Communication of results to industry
 - Duration of 16 weeks (service standard) between end of posting and results communicated to industry
7. Agreement signature and project start



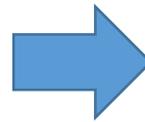
Eligibility

- Represents an eligible recipient as defined in Section 3.1
 - The organization must be a for profit or not-for-profit organization established and operating in Canada
 - The organization cannot be an academic institution
- Represents an eligible project as defined in Sections 3.2, 3.3 and 3.4
 - The project cannot be application development related to EO, SatCom or GNSS data
 - Other restrictions could be added in future AOs
- Meets the basic R&D definition in Section 3.5
 - The project cannot include any development beyond TRL6
 - The project cannot include any commercial activities
- Meets program funding provisions in Section 6.1
 - The project cannot request funding above the limit established in the AO
 - The project cannot request a stacking ratio above 75% of government financing, even if the project includes other programs that allow above 75%
- The submission must include all the documentation requested

Point rated evaluation



Innovation and market need



Project feasibility, resources and risk assessment

Outcomes and benefits to Canada



Point rated evaluation

- Each proposal is evaluated by 3 to 4 experts in the provided domain
- External evaluators (outside CSA) can be asked to participate
- For each proposal, ratings are discussed through a consensus review



Innovation and market need

- Demonstration of the novelty of the technology
 - How will the technology be state of the art?
- Demonstration of how the technology differentiates itself from the competition
 - What are the alternatives and how is the proposed technology differentiating itself?
- Demonstration of market need
 - What is the size of the market related to the technology?
 - What is the share that can be realistically captured?



Innovation and market need

Best practices

- Provide sufficient explanations, be clear and leave no critical information subject to interpretation
- Provide references, links, elements that explains and justifies your position
- Be fully aware of the alternatives and means of competing



Project feasibility, resources and risk assessment

- Demonstration of a clear and complete implementation plan
 - Is the plan clear for the evaluator to understand how the project will be implemented ?
- Demonstration that the proposed team possesses all necessary expertise to execute the tasks
 - Is the related experience clearly expressed in the CVs?
 - Is there additional background information that could confirm the experience ?
- Risk analysis and understanding of the possible impacts and mitigation strategies
 - What are the main technical and managerial risks of the project?
 - What are the mitigation strategies?



Project feasibility, resources and risk assessment

Best practices

- The project plan must be complete and clear to the evaluator, including work package, level of effort and schedule
- Key resources should be allocated to work packages and the assignment should be aligned with the expertise
- Risks need to be clearly identified and mitigations strategies should not be generic
- Although company past performance and reputation could be relevant, the only content accounted for in the evaluation is based on evidence found in the application form



Outcomes and benefits to Canada

- Innovation benefits
 - How is this innovation giving your company a competitive advantage in the targeted market?
 - How will the R&D lead into more projects within your firm?
- Economic benefits
 - How will this innovation generate growth within your company in terms of employment and revenues?
 - How is this innovation impacting other companies?
- Public benefits
 - How is this innovation impacting the broader Canadian public?



Outcomes and benefits to Canada

- Impact on HQPs and Canadians to develop STEM skills
 - How is the project contributing to the development of HQPs and encouraging Canadians to develop STEM skills?
- Impact on under-represented groups
 - How is your company promoting inclusivity in its activities and the proposed project?
- Path to flight
 - What is the roadmap to demonstrate the technology in space (or its application domain)?



Outcomes and benefits to Canada

Best practices

- The benefits should go beyond, the "simple" completion of the project
 - Clearly explain what is gained within your firm
 - Present any foreseen opportunities to manage and protect the IP
- Provide realistic projections of the revenues to be made, the impact on your workforce and the economic benefits on other Canadian companies if applicable
- The roadmap should allow the evaluator to understand the steps to be taken after the project to demonstrate and/or commercialize the technology



Final selection of projects

- The final selection is made by a review committee
- Point rated evaluation is a selection factor, but due to the different nature of the projects (not all same technology unlike RFPs), it is not the sole decision factor
- On top of point rated evaluation, selection is also based on the priorities of the Government of Canada and the CSA, such as but not limited to :
 - Commercialization opportunity
 - Return on investment
 - Growth potential
 - Involvement of HQPs and STEM students
 - Geographic representation



Key takeaways

- The proposal has to be complete while remaining concise
- The application form asks specific elements, ensure all have been answered
- The application should not leave elements to interpretation
- The process does not allow evaluators to ask questions during evaluation
- The contribution is an investment of the Government of Canada, the application should reflect how this investment will contribute to Canada's priorities

Agence spatiale canadienne



Canadian Space Agency