2009 Application for the Partnerships Support Program

Short Proposal Form

The Academic Champion is requested to use this form to prepare the short proposal for submission to Canadian Space Agency.

1. APPLICANT INFORMATION					
PROSPECTIVE AWARD HOLDER					
FAMILY NAME	**GIVEN NAME**		**INITIALS**	**DATE**	
ADDRESSES OF POST-SECONDARY INSTITUTION					
NAME					
DEPARTMENT					
No.	**Street**	**Rm.**	**Telephone No.**	**Fax No.**	
City	**Province**	**Postal Code**	**E-mail**		

2. ELIGIBILITY CRITERIA FOR PROSPECTIVE AWARD HOLDER
☐ **2.1 I HOLD A RESEARCH POSITION IN THE CANADIAN POST-SECONDARY INSTITUTION IDENTIFIED IN BLOCK 1 ABOVE: -**
2.2 RESEARCH PROJECT AREA
☐ **I plan to carry out the space technology research project proposed identified in section 3 of this form.**

3. RESEARCH PROJECT PROPOSAL
Fill in the boxes below to describe the research project proposal and demonstrate how it will contribute to the advancement of one of the space technologies listed *on the CSA Website (*http://www.asc-csa.gc.ca/eng/industry/technology.asp*)*. Use as much space as required, without exceeding three pages.

Canada

3.1 TITLE OF THE RESEARCH PROJECT

3.2.
A) EXPLAIN HOW THE PROPOSED PROJECT ALIGNS WITH THE STRATEGIC OUTCOME OF THE CANADIAN SPACE AGENCY: - 'CANADA'S PRESENCE IN SPACE MEETS THE NEEDS OF CANADIANS FOR SCIENTIFIC KNOWLEDGE, SPACE TECHNOLOGY AND INFORMATION. ASSESS THE ALIGNMENT ON A SCALE OF 0 TO 5: - '0' MEANS 'NO ALIGNMENT WHATSOEVER'; '5' MEANS 'STRONG ALIGNMENT WITH ALL THREE NEEDS'."
B) IDENTIFY THE PRIORITY TECHNOLOGY(IES) LISTED ON THE CSA WEBSITE (HTTP://WWW.ASC-CSA.GC.CA/ENG/INDUSTRY/TECHNOLOGY.ASP) TO WHICH THE PROPOSED RESEARCH PROJECT WILL CONTRIBUTE. ASSESS THE ALIGNMENT OF THE PROPOSED PROJECT WITH THE TECHNOLOGY(IES) IDENTIFIED ON A SCALE OF 0 TO 5: - '0' MEANS 'MINIMAL ALIGNMENT WITH A SINGLE ASPECT OF THE TECHNOLOGY(IES) IDENTIFIED'; '5' MEANS 'STRONG ALIGNMENT WITH THE FUNDAMENTAL THRUST(S) OF THE TECHNOLOGY(IES) IDENTIFIED'."
C) IDENTIFY THE CSA R&D PROJECT TO WHICH THE PROPOSED PROJECT WILL CONTRIBUTE. ASSESS THE ALIGNMENT OF THE PROPOSED PROJECT WITH THE CSA R&D PROJECT IDENTIFIED ON A SCALE OF 1 TO 5: - '1' MEANS 'MINIMAL ALIGNMENT WITH A SINGLE ASPECT OF THE CSA PROJECT'; '5' MEANS 'STRONG ALIGNMENT WITH THE FUNDAMENTAL THRUST OF THE PROJECT.

3.3 DESCRIBE THE RESEARCH PROJECT

3.4 ASSESS AND JUSTIFY THE DEGREE OF ALIGNMENT OF THE PROJECT WITH THE FOLLOWING SPECIFIC CSA STRATEGIC OBJECTIVES	
To support the training of skilled personnel in space technologies. Estimate numbers of HQPs trained by level (MSc, PhD, or PDF) and extent of training.	
Justification	
To advance technology readiness. Estimate the initial and final technology readiness levels (TRL) – see ANNEX A	
Justification	
Initial TRL ☐	
Final TRL ☐	
To align R&D priorities across the Canadian Space Sector.	
Justification	

4.0 ACADEMIC PARTNER

The Post Secondary Institution identified in Block 1 above.

Estimated Commitments (double click on the frame to enter the information)

	Year 1	Year 2	Year 3
(A) Level of Effort (py)			
(B) Institutional Salary Rates ($/year)			
(C = AxB) Annual Salary Commitment ($)	0	0	0
(D) Equipment and Facility Access (months)			
(E) Charge-out Rates ($/month)			
(F = DxE) Annual Equipment & Facility Commitment ($)	0	0	0
(G = C+F) Annual In-kind Commitment ($)	0	0	0
(H) Annual Cash Commitment ($)			
(G+H) Total Annual Cash and In-kind Commitment ($)	0	0	0

Head of Department Identified in Block 1 above.

Name: -

I advocate support for the proposed project.

Signature **Date**

5.0 INDUSTRIAL PARTNER

Corporate Name: -

Business Address: -

Estimated Commitments (double click on the frame to enter the information)

	Year 1	Year 2	Year 3
(A) Level of Effort (py)			
(B) PWGSC Approved salary Rates ($/year)			
(C = AxB) Annual Salary Commitment ($)	0	0	0
(D) Equipment and Facility Access (months)			
(E) Charge-out Rates ($/month)			
(F = DxE) Annual Equipment & Facility Commitment ($)	0	0	0
(G = C+F) Annual In-kind Commitment ($)	0	0	0
(H) Annual Cash Commitment ($)			
(G+H) Total Annual Cash and In-kind Commitment ($)	0	0	0

Project Champion

Name: -

Position: -

I advocate support for the proposed project.

Signature **Date**

Signing Authority

Name: -

Position: -

I advocate support for the proposed project.

Signature **Date**

6.0 CSA

Estimated Commitments (double click on the frame to enter the information)

	Year 1	Year 2	Year 3
(A) Level of Effort (py)			
(B) CSA Salary Rates ($/year)			
(C = AxB) Annual Salary Commitment ($)	0	0	0
(D) Equipment and Facility Access (months)			
(E) Charge-out Rates ($/month)			
(F = DxE) Annual Equipment & Facility Commitment ($)	0	0	0
(G = C+F) Annual In-kind Commitment ($)	0	0	0
(H) Annual PSP Grant Instalment ($)			
(G+H) Total Annual Cash and In-kind Commitment ($)	0	0	0

Project Champion

Name: -

Position: -

Director

Name: -

Position: -

I advocate support for the proposed project. Subject to a favorable Space Technology Research Program assessment, my Laboratory will commit the resources identified above to support it.

Signature **Date**

CSA Assessment

The Space Technology Research Program has assessed this proposal and has made the following decision

☐ **The Committee approves the proposed project**

☐ **The Committee does not approve the proposed project**

Signature: -

_____

Chair of Committee

Date: - _____

Canada

7.0 ADDITIONAL INFORMATION (Check the appropriate boxes and fill in the blanks in the statements below, if applicable.)

☐ I have not requested or received other public or private assistance for this research project proposal (except from NSERC).

OR

☐ I declare to have requested or received other assistance for this research project proposal from the following Organizations and Programs:

Organization	Program	Amount ($)	Received (Y/N)

OR

☐ I am a former federal public servant who is under the Conflict of Interest and Post-employment Guidelines.

8.0 CHECKLIST FOR ENCLOSED DOCUMENTS:

(Ensure all of the listed documents are enclosed with this form and check the appropriate boxes.)

☐ **Cover Letter**

☐ **CVs of members of industrial team**

☐ **University transcripts of students**

9.0 SIGNATURE OF PROSPECTIVE GRANT HOLDER (PROJECT LEADER IDENTIFIED IN BLOCK 1)

I advocate support for the proposed project

Signature _____

Date _____

ANNEX A

Technology Readiness Levels (TRL)
Source: Mankins, J. [NASA, 1995], Technology Readiness Levels: A White Paper)

TRL	Description
1. Basic principles observed and reported	This is the lowest level of technology maturation. At this level, scientific research begins to be translated into applied research and development.
2. Technology concept and/or application formulated	Once basic physical principles are observed, then, at the next level of maturation, practical applications of those characteristics can be devised or identified. At this level, the application is still speculative: there is no experimental proof or detailed analysis to support the conjecture.
3. Analytical and experimental critical function and/or characteristic proof of concept	At this step in the maturation process, active research and development (R&D) is initiated. This must include both analytical studies to set the technology into an appropriate context and laboratory-based studies to physically validate that the analytical predictions are correct. These studies and experiments should constitute "proof-of-concept" validation of the applications/concepts formulated at TRL 2.
4. Component and/or breadboard validation in laboratory environment	Following successful "proof-of-concept" work, basic technological elements must be integrated to establish that the pieces will work together to achieve concept-enabling levels of performance for a component and/or breadboard. This validation must be devised to support the concept that was formulated earlier, and should also be consistent with the requirements of potential system applications. The validation is relatively “low-fidelity” compared to the eventual system: it could be composed of ad hoc discrete components in a laboratory.
5. Component and/or breadboard validation in relevant environment	At this level, the fidelity of the component and/or breadboard being tested must rise significantly. The basic technological elements must be integrated with reasonably realistic supporting elements so that the total applications (component-level, sub-system level, or system-level) can be tested in a simulated, or somewhat realistic, environment.
6. System/subsystem model or prototype demonstration in a relevant environment (ground or space)	A major step in the level of fidelity of the technology demonstration follows the completion of TRL 5. At TRL 6, a representative model or prototype system or system—which would go well beyond ad hoc, “patch-cord” or discrete component level bread-boarding would be tested in a relevant environment. At this level, if the only relevant environment is the environment of space, then the model/prototype must be demonstrated in space.
7. System prototype demonstration in a space environment	TRL 7 is a significant step beyond TRL 6, requiring an actual system prototype demonstration in a space environment. The prototype should be near or at the scale of the planned operational system and the demonstration must take place in space.
8. Actual system completed and flight qualified through test and demonstration (ground or space)	In almost all cases, this level is the end of true system development for most technology elements. This might include integration of new technology into an existing system.
9. Actual system is flight proven through successful mission operations	In almost all cases, the end of last “bug fixing” aspects of true system development. This might include integration of new technology into an existing system. This TRL does *not* include planned product improvement of ongoing or reusable systems.