Innovation, Science and Economic Development Canada
Industrial Technologies Office

Innovation, Sciences et Développement économique Canada
Office des technologies industrielles

Technology Demonstration Program

Program Guide

Canada

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Programme de démonstration de technologies (PDT) — Guide de programme

What is the Technology Demonstration Program?

The Technology Demonstration Program (TDP) was launched in 2013. It provides non-repayable contributions to support one or more large-scale research and development (R&D) projects per year.

Projects supported by the program are expected to:

- ensure a concentration of technology development in priority areas with significant potential for broad based and long-term economic benefits;
- be the basis for the next-generation of manufacturing, technical capabilities and services in Canada; and,
- generate material economic benefits for Canada in the longer term.

The program is managed by Innovation, Science and Economic Development Canada's Industrial Technologies Office.

Who is eligible to apply?

Eligible Recipients

Funding under the TDP is generally given to collaborative groups of Eligible Recipients. Eligible Recipients for funding under TDP are corporations incorporated pursuant to the laws of Canada that carry on business in Canada and propose to conduct industrial research and technology demonstration activities with Aerospace, Defence, Space and Security (A&D) applications, as well as Canadian universities or colleges and Canadian research institutes.

Eligible Recipients are categorized as Lead Recipients and Partner Recipients.

A Lead Recipient is normally an Original Equipment Manufacturer (OEM) or a Tier 1 supplier and will be responsible to submit a project application and manage the project. The Partner Recipients will work with the Lead Recipient to complete the project. At a minimum, the Partner Recipients must include one small or medium-sized Canadian corporation and one Academic Institution (accredited Canadian universities, colleges or affiliated research institutes).

What is an eligible project?

1. Project activities are to be in the range of Technology Readiness Level (TRL) one (1) through six (6). See Annex 1 for a description of the TRL scale. Eligible Activities are industrial research and technology demonstration in A&D carried out by the Eligible Recipients. The combination of these Eligible Activities constitutes an Eligible Project.

    a. **Industrial research** means the efforts and activities aimed at the discovery of new knowledge, typically related to Technology Readiness

Level one through three, with the objective that such knowledge may be useful in developing new products, processes or services or in bringing about an improvement to existing products, processes or services; and,

b. **Large-scale technology demonstration** means the efforts and activities aimed at advancing new technology from the laboratory to test and validate it in increasingly realistic settings, typically related to Technology Readiness Levels four through six with the objective that a successfully demonstrated technology may be further developed into product specific applications, and then tested and certified in an operational environment.

2. TDP support must be essential to the location, scope and/or timing of the project.

3. Other considerations:

    a. The Eligible Recipients must have sufficient resources to fund the R&D, which typically covers a 5-year period. Under TDP, the contribution to any Eligible Project will not exceed 50 percent of total Eligible Costs. The TDP contribution provided to each of the Eligible Recipients shall not exceed 50 percent of their respective Eligible Costs except for Eligible Recipients that are Academic Institutions where the contribution provided may cover 100 percent of their Eligible Costs.

    b. The maximum contribution amount under TDP would normally not exceed $54 million.

    c. Eligible costs may include direct labour, material, equipment, and overhead at a rate of 75 percent of direct labour. Eligible costs may also include support for R&D infrastructure, such as shared facilities (e.g. outfitting a specialized laboratory with advanced research equipment or a testing facility). In the case of significant investment in infrastructure, a plan that allows the project's infrastructure to be maintained and made available for use after the project is completed must be provided to the Department.

    d. The level of assistance from all government sources (federal, provincial, territorial and municipal) to an Eligible Project shall not normally exceed 75 percent of Eligible Costs.

        The level of assistance from all government sources (federal, provincial, territorial and municipal) to any one Eligible Recipient shall not normally exceed 75 percent of its Eligible Costs except for Eligible Recipients that are Academic Institutions.

    e. The Eligible Recipients are expected to have a post-project strategy to further develop and commercialize the project technology.

f. The Crown will not acquire rights to any intellectual property (IP) created through projects funded under these Terms and Conditions, nor will the Crown acquire new rights in Background Intellectual Property, by virtue solely of having provided the Contribution. Neither will the Crown relinquish rights attributed to it in any other way including under the Public Servants Inventions Act.

   The Eligible Recipients must own the Background Intellectual Property or hold sufficient Background Intellectual Property Rights to permit the Project to be carried out and the Project Intellectual Property to be exploited.

   The Eligible Recipients shall take appropriate steps to protect the Project Intellectual Property and shall provide information to the Minister in that regard, upon request.

   Ownership and exploitation of the Project Intellectual Property to which the Minister has contributed, and the Project Intellectual Property Rights therefor, shall remain in Canada for the duration of the Contribution Agreement and the five (5) years immediately following the expiration of the Contribution Agreement unless otherwise agreed to by the Minister.

g. Generally, Eligible Costs must be incurred in Canada. However, limited funding from the program may support R&D outside Canada when necessary for the project's success and when the R&D cannot otherwise be undertaken in Canada.

What is the application and approval process?

The process for approving applications for funding from TDP comprises three phases:

1. Statement of Interest (SOI)
2. Project Proposal
3. Contribution Agreement

There will be an annual call for applications. The table below provides details on the expected application process and estimated 12-18 month timeline.

The Lead Recipient submits an application on behalf of all the Recipients.

Note: An Applicant refers herein to the collaborative group that would become the Eligible Recipients should the proposal be approved.

APPLICATION PROCESS AND TIMELINE	Duration
Statement of Interest (SOI) Submission Period	**3 months**
Review of SOI **Invitations to Selected Applicants**	**1 month**
Project Proposal Submission Period	**3 months**
Due Diligence	**2-3 months**
Approvals	**2-6 months**
Contribution Agreement	**1 month**

1. Statement of Interest

To apply, a Statement of Interest must be submitted by a specified due date. The Statement of Interest will be assessed by a committee of government officials from science-based departments against each of the evaluation criteria identified below, with particular emphasis on anticipated economic benefits to Canada. Following this assessment**,** a select number of Applicants will be invited to submit a full Project Proposal. Applicants may refer to the Statement of Interest Application Guide for more details.

2. Project Proposal

Project Proposals must also be submitted by a specified due date. These proposals will be assessed against each of the evaluation criteria identified below. Innovation, Science and Economic Development Canada will draw on internal and external experts when undertaking its due diligence, which may involve site visits and meetings with the Eligible Recipients. Following due diligence, Applicants will be informed of the status of their proposal. The Minister of Innovation, Science and Economic Development Canada will exercise his or her discretion on which project to fund. The Minister will seek Treasury Board and Cabinet approval prior to authorizing contributions in excess of $50 million. Applicants may refer to the Project Proposal Application Guide for more details.

3. Contribution Agreement

Following project approval, a Contribution Agreement will be prepared for signature by the Lead Recipient, the Partner Recipients and the Crown which will identify the conditions of the contribution, the obligations of all parties and the conditions under which payments will be made. Contribution agreement provisions will address the requirements of the Treasury Board Policy on Transfer Payments and the Terms and Conditions of the TDP.

What are the evaluation criteria?

Projects will be assessed against the following criteria.

Economic Benefits to Canada
The degree to which the Applicant demonstrates that the project is expected to benefit all parties involved in the project, be the basis for the next generation of manufacturing and/or services in Canada, and generate material economic benefits for Canada in the longer term.

Broader Benefits to Canada
The degree to which the Applicant demonstrates that the project is expected to generate social, environmental, health, security or other benefits to Canada.

Collaboration
The degree to which the Applicant consists of a significant group of corporate and academic partners working collaboratively to achieve mutually beneficial outcomes.

Innovation
The degree to which the Applicant demonstrates that the project is technologically feasible and that it can reasonably be expected to result in new technological capabilities that are essential to achieving the proposed benefits.

Management and Technological Capability
The Applicant demonstrates the required managerial and technological capability and track record to successfully undertake the project.

Financial Capability
The Applicant demonstrates the financial capability to complete the project and the degree to which funding by the Technology Demonstration Program will leverage incremental private sector investment in R&D.

Post-Project Commitment
The Applicant demonstrates a commitment to further develop the technology for potential commercialization and to sustain any infrastructure after project completion.

Given the nature of this program, more applications may be received than can be funded. In general, applications will generally be scored higher with a larger number of recipients, higher degree of potential benefits to the Eligible Recipients, larger potential spill-over economic benefits to Canada, stronger plan, most leverage in terms of private sector investment, and stronger post project planning to further invest for commercialization purposes, will be more favourably evaluated.

What are the reporting requirements during and after the project?

R&D Phase

During the R&D phase, the Eligible Recipients must submit financial claims for reimbursement of eligible costs incurred on a quarterly or semi-annual basis, or at other frequencies as determined by the Minister. With each financial claim, the Eligible Recipients must provide a report that documents the progress of the project.

Project review meetings will take place at the Minister's discretion, normally at least once a year and normally at the Lead Recipient's location. Project reviews are scheduled at the discretion of the Minister based on risk, size of the project and other factors.

On a yearly basis, the Eligible Recipients will be required to provide a report on progress being made toward achieving the outcomes and benefits associated with the project.

Upon completion of the project, the Eligible Recipients will be required to submit a final report on the overall project goal and results.

Post-R&D Phase

For five years after the project is completed, the Eligible Recipients will be required to provide annual post-project reports to document longer-term benefits realized since the completion of the project. In this report, the Eligible Recipients will also be required to demonstrate how they are furthering the development of the technology for potential commercialization, and where applicable, sustaining project infrastructure.

Other important information

Applicants should read and consider all the following information prior to submitting a proposal.

Lobbying Act

The Applicant must comply with the Lobbying Act throughout the application process and the life of any TDP-funded project. Prior to communicating with the Industrial Technologies Office about an application please review the provisions of the Act. For more information on lobbying and the *Lobbying Act*, consult the Office of the Commissioner of Lobbying of Canada.

Security of company information

The Department will not disclose to any party outside the federal government (other than external parties retained to review technical aspects of a proposal and subject to non-disclosure agreements) any commercially confidential information an Applicant submits, except in the following circumstances:

- The company authorizes the release;
- Innovation, Science and Economic Development Canada is required by law to release the information;
- The information ceases to be confidential;
- The Minister of Innovation, Science and Economic Development Canada is required to release the information to an international or internal trade panel due to a dispute in which Canada is a party or a third-party intervener.

Applicants must mark any commercially confidential information in its proposal as such. TDP applicants may also wish to become familiar with the terms of the Access to Information Act, which governs the release of information held by federal organizations.

International agreements

TDP is administered in compliance with Canada's international agreements. TDP contributions are not contingent, in law or in fact, on actual or anticipated export performance.

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For additional information on the ITO or the Technology Demonstration Program, please visit www.ito.ic.gc.ca.

Annex 1 - Technology Readiness Level (TRL) scale

Technology Readiness Level	Description
TRL 1 **Basic principles observed and reported**	Lowest level of technology readiness. Scientific research begins to be translated into applied research and development (R&D). Examples might include paper studies of a technology's basic properties.
TRL 2 **Technology concept and/or application formulated**	Invention begins. Once basic principles are observed, practical applications can be invented. Applications are speculative, and there may be no proof or detailed analysis to support the assumptions. Examples are limited to analytic studies.
TRL 3 **Analytical and experimental critical function and/or characteristic proof of concept**	Active R&D is initiated. This includes analytical studies and laboratory studies to physically validate the analytical predictions of separate elements of the technology. Examples include components that are not yet integrated or representative.
TRL 4 **Component and/or breadboard validation in laboratory environment**	Basic technological components are integrated to establish that they will work together. This is relatively "low fidelity" compared with the eventual system. Examples include integration of "ad hoc" hardware in the laboratory.
TRL 5 **Component and/or breadboard validation in relevant environment**	Fidelity of breadboard technology increases significantly. The basic technological components are integrated with reasonably realistic supporting elements so they can be tested in a simulated environment. Examples include "high-fidelity" laboratory integration of components.
TRL 6 **System/subsystem model or prototype demonstration in a relevant environment**	Representative model or prototype system, which is well beyond that of TRL 5, is tested in a relevant environment. Represents a major step up in a technology's demonstrated readiness. Examples include testing a prototype in a high-fidelity laboratory environment or in a simulated operational environment.
TRL 7 **System prototype demonstration in an operational environment.**	Prototype near or at planned operational system. Represents a major step up from TRL 6 by requiring demonstration of an actual system prototype in an operational environment (e.g., in an aircraft, in a vehicle, or in space).
TRL 8 **Actual system completed and qualified through test and demonstration.**	Technology has been proven to work in its final form and under expected conditions. In almost all cases, this TRL represents the end of true system development. Examples include developmental test and evaluation (DT&E) of the system to determine if it meets design specifications.
TRL 9 **Actual system proven through successful mission operations.**	Actual application of the technology in its final form and under mission conditions, such as those encountered in operational test and evaluation (OT&E). Examples include testing the system under operational mission conditions.

Based on the NASA TRL System