



Canada Foundation for Innovation
Fondation canadienne pour l'innovation

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Standing Committee on

Industry, Science & Technology

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Introduction

About the CFI

Created in 1997 as an independent corporation by the Budget Implementation Act, 1997, the CFI's mission is to strengthen the capacity of Canadian universities, colleges, research hospitals, and non-profit research institutions to carry out world-class research and technology development that benefits Canadians through the provision of research infrastructure.

The CFI funds up to 40% of a project's infrastructure costs. The institutions then leverage this funding to attract the remainder from partners in the public, private, and non-profit sectors. Since its creation and including the two most recent budget announcements, the CFI will have been entrusted with an investment of \$4.24 billion by the Government of Canada, of which \$3.8 billion has already been committed. It is estimated that the total capital investment by the CFI, the research institutions, and their other funding partners, will exceed \$11 billion by 2010.

Contributing to Canada's Science and Technology Strategy

The Government of Canada's S&T Strategy—*Mobilizing Science and Technology to Canada's Advantage*—identifies and strives to enable three key advantages: an Entrepreneurial Advantage, a Knowledge Advantage, and a People Advantage.

The March 2007 federal budget and the federal S&T Strategy positioned the CFI as an essential element of the country's science and technology capacity, and provided funding of \$510 million for another competition to be held before 2010.

In fulfilling its mandate, the CFI continues to promote the four core principles that underlie Canada's S&T Strategy: Promoting World-Class Excellence; Focusing on Priorities; Fostering Partnerships; and Enhancing Accountability. (*See Appendix 1 for details*).

The Way Forward—Strategy and Objectives for the coming year

The focus of the CFI in the year ahead remains the provision of world-class research infrastructure investments to advance the research enterprise and to effectively support Canada's S&T Strategy (*see Appendix 1 for details*).

While the CFI's *program activities* during 2008-09 will focus on promoting excellence through a major funding competition, the CFI will contribute to building the *Knowledge, People, and Entrepreneurial Advantages* of the country through the pursuit of four strategic objectives. These objectives are guided by the four principles underlying the federal S&T Strategy.

Objective 1: Strengthen the Core Assets of the CFI Program

Guiding strategic principle: Promoting World-Class Excellence

The core objective of the CFI remains the enhancement of the research capacity of the nation by funding research infrastructure. The \$510 million announced in Budget 2007 is augmented by a previous announcement of \$80 million in Budget 2006 for the Leaders Opportunity Fund.

In preparing for a new round of competitions, the CFI set out to engage Canada's R&D and related communities to gauge the value of its program architecture, identify adjustments that might be necessary to future programs, and assure an effective response that best addresses the ever-evolving needs of the research community.

The consultation was conducted from June to October 2007 during which CFI Management met with 120 representatives from 42 universities, 32 representatives from 19 colleges and polytechnics, eight representatives from research hospitals, and with 28 provincial government officials from all ten provinces across the country. Consultations also included federal government officials, research community associations, industry, and other federal funding agencies.

Overall, the community, including provincial governments, perceived the CFI's current suite of programs as well aligned with current needs and endorsed the CFI's flexible approach. Specific input has been integrated into the design of the current Calls for Proposals.

Competitions scheduled for 2008-2009:

- Research Hospital Fund

A comprehensive review process in collaboration with the Canadian Institutes for Health Research (CIHR) to review candidate projects under the Clinical Research Initiatives was completed. Final results were presented to the CFI Board in March 2008. A more ambitious three-part review process has been designed for the assessment of the 28 candidate projects under the Large-Scale Institutional Endeavours. Final results are expected to be presented to the Board in June 2008. For the two streams combined, \$443M will be allocated, augmented by approximately \$133M for infrastructure operating funding.

- **Leading Edge Fund (LEF) / New Initiatives Fund (NIF)**

A Call for Proposals was issued in early 2008. For large initiatives with substantial downstream funding requirements, the CFI will invite the federal funding agencies to attend the review of projects and will share with the appropriate agencies the outcomes of the review process. This will assist the funding agencies in their planning efforts. A total of \$400M is available for infrastructure project funding, plus an additional \$120M for associated infrastructure operating funding with Board decisions in June, 2009.
- **Leaders Opportunity Fund**

The fund will continue to assist universities to attract and retain high quality researchers. The CFI will commit an estimated \$90M in 2008–2009 to about 570 projects over the coming year. Of the \$80M awarded for LOF in the Federal Budget 2006, the CFI allocated to institutional envelopes an additional \$27M initially and the remaining \$53M will be allocated at the conclusion of a review of the program, later in the year.
- **Infrastructure Operating Fund**

Funds will be committed to enable operating of research infrastructure at the rate of 30% of the CFI award. Approximately \$133M will be awarded to support the successful Research Hospital Fund projects and an estimated \$120M will be awarded in 2009 in conjunction with the successful projects under the LEF/NIF competition. In addition, some \$18M will be committed through the successful LOF projects in 2008-2009.
- **National Platforms Fund**

The fund is available for enabling technology platforms with implications for the national research community. The CFI will define the elements of a Call for Proposals under this fund in conjunction with the national research community and other stakeholders.

Objective 2: Continue to Align the CFI with the Priorities of the Federal Government and the Research Community

Guiding strategic principle: Focusing on Priorities

Seek out a New National Platform

The CFI will be launching an exploration of potential national platform targets based on strategic research needs in the areas of national interest identified in the S&T Strategy. Through a bottom-up approach, the CFI will gauge the degree of support within the respective communities of interest. Once the most promising possibilities are identified, the CFI will facilitate discussions to formulate a concept and framework for development of a Call for Proposals.

Formulate a Collaborative Initiative in Environmental Change

The CFI, in partnership with the three federal research funding agencies, will formulate both a target and a unique process with which to engage the research community in addressing the economic, health, and social impacts of environmental change.

Objective 3: Extend CFI Capability by Leveraging our Relationships

Guiding strategic principle: *Fostering Partnerships*

Expand Collaborative Funding Initiatives

Through the Leaders Opportunity Fund, the CFI will continue to partner with the three federal research funding agencies, and provide infrastructure funding support to the Canada Research Chairs.

In addition to its core programs, the CFI will work with other funding organizations to explore the merits of infrastructure support for the following programs through formal partnerships:

- Centres of Excellence in Commercialization and Research (CECR)

The CECR program has recently completed its inaugural competitive process, assessing not only the merits of the applications but also the effectiveness of the process itself. During the post-award period, the CFI will work with program managers in the National Centres of Excellence program to assess the effectiveness of the process and the merits of including an infrastructure component through a partnership.

- International Science and Technology Partnership Program (ISTP)

The CFI has been a participant in the development of the Canada-California Strategic Innovations Partnership to identify potential programs of mutual benefit to the two jurisdictions. This year, the CFI will explore the merits of involvement with and support to one such initiative targeting cancer stem-cell research.

Nurture Closer Working Relations with Federal Funding Agencies

The CFI will continue to work with the three federal research funding agencies to identify additional areas of integration. While this exploration continues, the CFI will be working on three specific initiatives:

- Major Investments in Science and Technology Initiative

The chronic issues facing major investments in science and technology are being explored and integrated into a multi-agency paper, to be shared with the Minister of Industry. The paper will focus primarily on defining the nature and scope of the issues facing these science-based investments.

- Balance of Funding

Building upon an earlier baseline study, consultations with external stakeholders will be undertaken this year to pinpoint the major pressure points on the research system. With this information, we will work with other funding agencies to improve our ability to promote a reasonable balance between capital, operations and maintenance, indirect costs, and research funding.

- ERA-Can

The purpose of ERA-Can (www.era-can.ca) is to provide information and operational support to increase S&T collaboration between Canada and the European Research Area (ERA). Eight federal S&T agencies have committed financial and in-kind support to the 3-year initiative, also funded by the European Commission. The CFI acts as legal entity and accountant for ERA-Can, and with the other agencies steers the direction of the project. In the coming year, ERA-Can is to undertake the organization of four Canada-EU workshops that will align with the Canadian federal S&T Strategy, and with the EU's Framework Program 7.

Build Strong Provincial Relations

In the coming year, the CFI will continue to build strong relationships with the provinces by sharing information, collaborating on joint funding announcements, and working together to explore potential for collaboration on post-award processes such as audit, evaluation and outcome assessment.

Objective 4: Build our Organizational Capability

Guiding strategic principle: Enhancing Accountability

Assess Impacts and Disseminate Results

The CFI will complete development of a broad framework that integrates performance management, evaluation, risk assessment, and audit activities. A conceptual framework is outlined in Appendix 3. Planned activities for 2008-2009 include:

- Overall Performance Evaluation (OPE)

The CFI will develop a strategy for the OPE including an evaluation design and estimated timeline. The current funding agreement with Industry Canada requires that this evaluation be completed by 2010.

- Progress Reports

As in previous years, an analysis of the progress report data will be carried out and posted on the CFI website. Improvements to the data collection forms based on the Performance, Evaluation, Risk and Audit Framework (PERAF) and recommendations from a third party are expected to translate into an improved report.

- Outcome Measurement Studies (OMS)

Six to nine institutions will be visited in 2008-2009 to determine the outcome of investments in selected thematic areas in which the CFI has made commitments. Representatives from provincial governments and other funding agencies will continue to be involved. The OMS process will be reviewed and updated in the summer based on insights acquired through the first six visits. The CFI will also participate in an inter-agency initiative to determine common measures of outcomes with the intent of sharing data and reducing reporting burden for institutions.

- Evaluations and Special Studies

A list of evaluations and special studies to be undertaken will be finalized based on management priorities. Ongoing is a special study to explore the role of CFI-funded research infrastructure in enhancing the development of Canadian-based university spin-off companies.

Report on and Monitor Financial Performance

- **Investment Plan**

The CFI will review its Investment Strategy and Investment Policy in the Fall. It will also implement the new changes to the Funding Agreement that was signed in early 2008, specifically new requirements regarding cash flow statements.

- **Monitoring Activities**

The CFI conducts monitoring visits and meetings at institutions in order to ensure that funds are being used for their intended purposes, and in accordance with terms and conditions of award agreements as well as CFI policies and guidelines.

The strategy used by the CFI is to visit all the recipient institutions whose aggregate funding received from the CFI represent 85%-90% of the total awards committed by the CFI. On average, monitoring visits are conducted at institutions every three years. The CFI anticipates conducting a dozen visits/meetings in 2008-2009.

- **Award Audits**

The CFI modified its approach during the 2007-2008 fiscal year for the selection of projects that will be subject to an audit. A risk-based statistical approach was previously used while a new risk-based judgemental approach has been approved going forward. These audits are conducted using either external auditors or internal resources. In some instances, experts are mandated to perform cost assessments on specific items. The CFI anticipates performing approximately 30 audits in 2008-2009.

Communicating with Canadians

Communicating results of research investments is critical on a number of fronts. It draws attention of key players—both nationally and internationally—to the needs and benefits of research. It attracts the interest of potential partners, increases the potential for commercialization, encourages funding and research partnerships, attracts talent to Canada, and provides the CFI with an opportunity to recognize the Government of Canada for entrusting the foundation with this important mandate. The CFI will continue to work with its client institutions to report through the media to the public on the research enabled by its infrastructure investments. Every CFI news release announcing new investments will include a Government of Canada approved quote.

Conclusion

The CFI is successfully meeting its mandate to strengthen the capacity of Canadian universities, colleges, research hospitals, and other not-for-profit research institutions to carry out world-class research and technology development for the benefit of Canadians. Its infrastructure investments have clearly had a dramatic impact on the R&D landscape in Canada, paving the way for the transformation to a knowledge-based economy.

Canada has established a global reputation as a place to do research and training of outstanding quality. Canada's research investments are paying off in the caliber of talent this country is able to attract to its communities. The groundbreaking discoveries of these researchers have the power to improve our quality of life in ways we can't yet imagine—helping to make Canada one of the leading innovative countries in the world.

To build a more innovative Canada—a nation whose economic foundation increasingly depends on the knowledge-based economy—the Government of Canada needs to stay the course in supporting research. Canada's economic prosperity and quality of life depend on it.

Integration of CFI Activities with the Federal Science and Technology Strategy

Alignment of the CFI with Core Principles of Canada's S&T Strategy

Core Principle	CFI Alignment and Initiatives
Promoting World Class Excellence	<ul style="list-style-type: none"> • All CFI awards are based on a rigorous and transparent evaluation of excellence and merit, using international experts and standards • Criteria applied in evaluations of proposals include the quality of the science and the researchers; the capacity of the institution to carry out world-class research and technology development and the training of highly qualified personnel; the alignment of the project with the institution's strategic research plan; the potential of the project to produce economic and social benefits for Canada.
Focusing on priorities	<ul style="list-style-type: none"> • Using the above approach, to date the majority of CFI funds have been allocated to: health (particularly genomics, proteomics, and bioinformatics); energy, sustainable development, and the environment; information and communications technology, and advanced materials. • The recently re-designed <i>Leading Edge Fund</i> builds on strengths by investing in previously funded projects whose performance has undergone a rigorous evaluation. In the last major CFI competition (November 2006) \$141M (43% of available funds) were invested in such projects. Given the results to date (noted above), this process will result in a further concentration of investments in the areas of priority outlined in the S&T Strategy. • In December 2006, the first competition under the <i>National Platforms Fund</i> allocated \$60M in capital and \$18M in operating support for a national High Performance Computing network (information and communications technology), to which NSERC committed an additional \$10M in operating support. Further competitions under this fund will allow greater focus in the areas of priority outlined in the S&T Strategy. • The <i>Research Hospital Fund</i> of \$500M is focused entirely on health research, including a joint Clinical Research Initiative with CIHR. • The CFI and the three granting agencies are currently developing a joint initiative for a coordinated and comprehensive research platform in the area of environmental change that is intended to encompass several facets, including convergence issues around the

	<p>environment, energy and natural resources; the economic and social dimensions; and the unique challenges for Canada’s Arctic regions.</p>
<p>Fostering partnerships</p>	<ul style="list-style-type: none"> • CFI awards provide 40% of the capital costs of infrastructure and equipment with the balance being provided by the host Province, an industrial partner, and the recipient institution. This arrangement has therefore leveraged CFI funding and fostered public-private research and commercialization partnerships. • The CFI is in discussions with several potential partners including: the National Centres of Excellence regarding the new Entrepreneurial Advantage Program – Centres of Excellence in Commercialization and Research – with a view to developing a joint initiative that would provide infrastructure funding to eligible new such centres modeled on the very successful Canada Research Chairs-CFI infrastructure program; NSERC regarding the inclusion of infrastructure funding in the soon to be launched College and Community Innovation Program. • The CFI has developed a number of collaborative partnerships with the three granting agencies. Since release of the S&T Strategy, the four organizations now meet on a regular basis (at the levels of both Presidents and Vice Presidents) to develop joint approaches to the building of critical mass in the priority S&T areas (such as the environment - see above), support of multidisciplinary research and to develop opinions on issues relevant to policy makers (recent joint submission of a paper on the Impacts to the Federal Granting Agencies to the Independent Panel on the Transfer of Federal Laboratories to Academia or Private Industry). • In its September 2006 brief to Government, the CFI had proposed an initiative that would enhance academic-industry interactions in the pre-commercialization phase of innovation. The S&T Strategy incorporates this responsibility into other new programs (Centres of Excellence in Commercialization and Research, Community College Innovation Program, Business-Led Centres of Excellence) but in the upcoming competition, the CFI highlights its ongoing mandate and interest in facilitating technology development through meaningful partnerships between eligible institutions and industry. • The CFI, the three granting agencies, and the National Research Council of Canada have initiated discussions with regard to the challenge of managing the nation’s portfolio of large science facilities.
<p>Enhancing accountability</p>	<ul style="list-style-type: none"> • The Board of Directors of CFI has put in place strong governance, accountability, and reporting practices. In 2006, the CFI was the recipient of the prestigious Conference Board of Canada/Spencer Stuart Award for Governance in the public sector.

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- A 2006 Industry Canada audit found the CFI to be in complete compliance with its funding agreement.
 - A 2007 Treasury Board assessment of the role and value of Foundations, including the CFI, determined that Foundations are an appropriate mechanism for the delivery of programs (such as support of research) that require specialized expertise and multi-year funding allocations. The report also determined that the larger Foundations (of which the CFI is the largest) are a very cost-effective mechanism for delivering such service. In the case of the CFI, administrative overhead costs, according to the report, amount to 2.7% annually.
 - A recent audit by the Office of the Auditor General of innovation across Government departments and agencies determined that within the context of this audit, the CFI was effectively delivering on its mandate and was in compliance with the relevant legislation and policy.
 - A 2006 study by the Council of Canadian Academies - *The State of Science and Technology in Canada* – gave the CFI and the Canada Research Chairs the highest “Advantage” ratings among 21 specific infrastructure components in the country that support S&T knowledge production.
 - The CFI has effectively developed a performance management approach to the stewardship of committed funds – including strategic research plans from institutions as a condition of eligibility; annual progress reports during the course of project development and after the fact; and several accounting, auditing and reporting requirements, including regular financial reporting, monitoring visits, and contribution audits.
 - The CFI continues to strengthen its accountability framework by updating its integrated Performance, Evaluation, Risk and Audit Framework inspired by RMAF and RBAF, based on long-standing risk-based audit selection process. In addition, the CFI has recently initiated a series of Outcome Measurement Studies that assess the global impact of CFI investments in each recipient institution, based upon a series of indicators that have been pilot-tested and validated by an international review panel.
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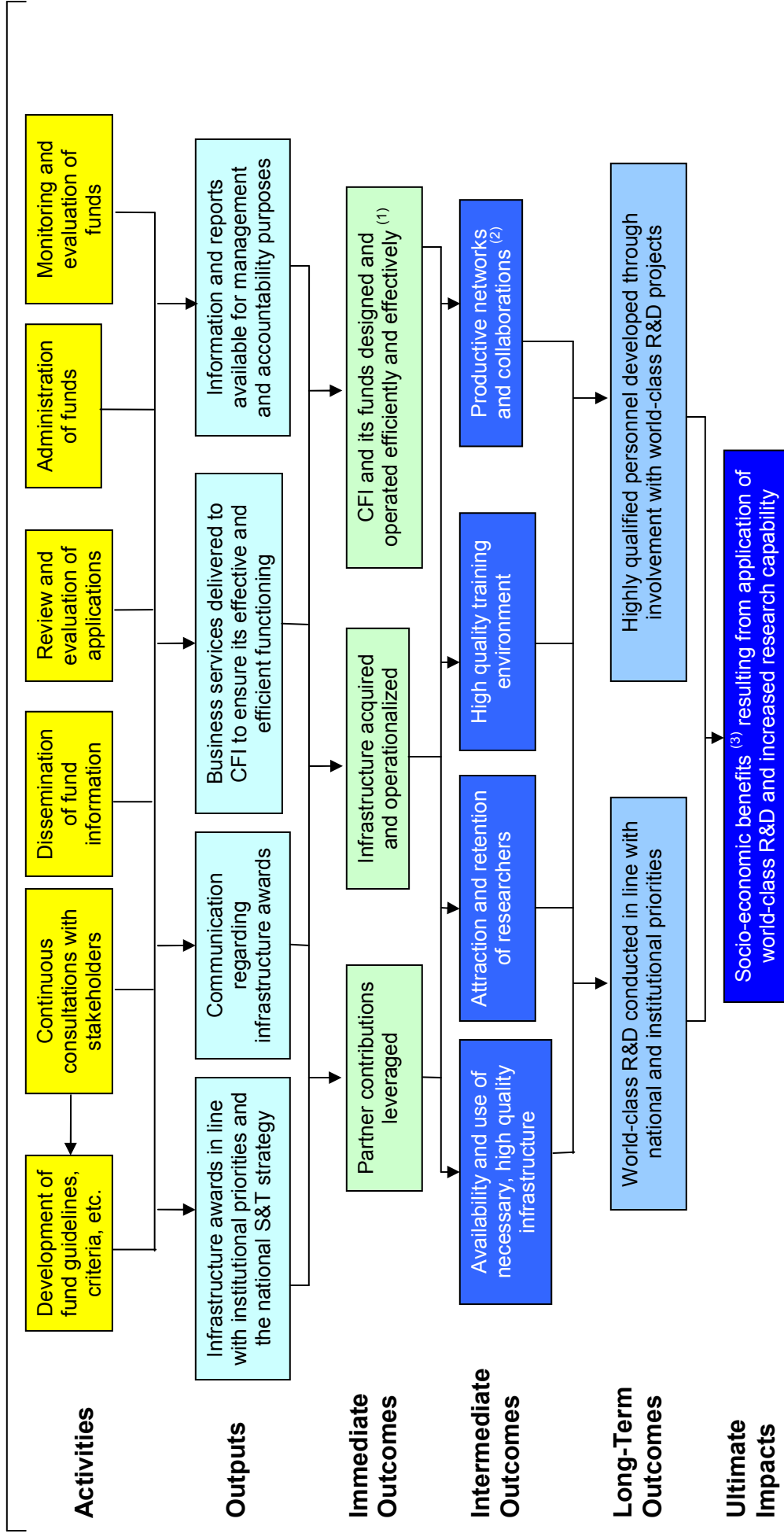
To support economic growth and job creation; as well as health and environmental quality through innovation.

To increase Canada's capacity to carry out important world-class scientific research and technology development.

To expand research and job opportunities by providing support through research infrastructure for the development of highly qualified personnel.

To promote productive networks and collaboration among Canadian post-secondary educational institutions, research hospitals and the private sector.

National Objectives



Note: The word *fund* includes CFI Funds (programs) and funds (awards disbursed).

1) Efficient and effective operation of the CFI's funds includes ensuring compliance with the Funding Agreement and fund guidelines and requirements.

2) Networks and collaborative arrangements include links between researchers, links between institutions, and links with end-users of the outputs of the R&D process. This objective also includes the sharing of new infrastructure – i.e., the arrangements that are set up include those related to infrastructure sharing.

3) Socio-economic benefits include economic growth, job creation (including jobs resulting from infrastructure construction), improved health and health care, and improved environmental quality.

CFI Performance, Evaluation, Risk, and Audit Framework (PERAF)

