

CANADA FOUNDATION FOR INNOVATION

Performance, evaluation, risk and audit framework (PERAF)

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INNOVATION.CA



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1.0 INTRODUCTION

Since it was introduced in 2008, the Canada Foundation for Innovation's (CFI) Performance, evaluation, risk and audit framework (PERAF) has served as a guide for how the organization manages risk and tracks and assesses its performance in relation to its objectives and expected results. In the spirit of continuous improvement and given the introduction of a new contribution agreement in 2019 and the commitment for permanent ongoing funding starting in 2023–24, the CFI determined that it was timely to perform a review and refresh of the PERAF.

The PERAF applies to the CFI as a whole and includes:

- A profile of the organization;
- An organizational risk assessment and management plan;
- A plan for the ongoing collection and reporting of information on CFI's performance; and,
- An evaluation strategy.

This revision continues to be informed by the Treasury Board Secretariat's guidelines for developing performance measurement strategies¹. The 2020 PERAF replaces the PERAF approved by the CFI's Board of Directors in March 2015.

¹ Treasury Board of Canada Secretariat. *Supporting Effective Evaluations: A Guide to Developing Performance Measurement Strategies*. September 2010. <http://www.tbs-sct.gc.ca/cee/dpms-esmr/dpms-esmr02-eng.asp>

2.0 ORGANIZATIONAL PROFILE

2.1 Context

In creating the CFI and other research funding initiatives over more than 20 years, the Government of Canada has played a vital role in transforming Canada's science and technology landscape.

The CFI funds research infrastructure — advanced equipment, laboratories, databases, specimens, scientific collections, computer hardware and software and communications linkages — which sets the stage for discovery research and fuels innovation.

The Government of Canada's ongoing support has allowed the CFI to adjust its program architecture to meet the evolving research infrastructure needs of Canada's research institutions while safeguarding the public interest.

In Budget 2018², the Government of Canada announced an investment of \$763 million over five years for research infrastructure. In addition, it proposed to establish permanent funding for the CFI at an ongoing level of up to \$462 million per year starting in 2023–24.

Mandate and values

The mandate of the CFI is to make financial contributions to Canada's universities, colleges, research hospitals and non-profit research organizations to increase their capability to carry out high-quality research.

The CFI is committed to the principles of equity, diversity and inclusion. In all our activities, we recognize that a breadth of perspectives, skills and experiences contributes to excellence in research. For our part, we strive to be responsible, collaborative, innovative and accountable³.

CFI objectives and expected results

The CFI operates under two funding agreements and three contribution agreements:

- The 1997 (Amended) Funding Agreement, which includes four "national objectives";
- The 2010 Funding Agreement, which includes four "expected results"; and,
- The 2014, 2015 and 2019 contribution agreements, which include national objectives and expected results (the same ones for all three contribution agreements).

The "objectives" are established by the Government of Canada and are to be achieved by the CFI, while the "expected results" are the results intended to be achieved by the recipients of CFI funding. These objectives and results are closely aligned and are interdependent.

Objectives

The current 2019 Contribution Agreement states: "the Foundation shall have the following objectives:

- a) Support economic growth and job creation, as well as health and environmental quality through innovation.
- b) Increase Canada's capability to carry out important world-class scientific research and technology development.

² Department of Finance Canada. *Equality + Growth: A strong middle class*. February 2018. <https://www.budget.gc.ca/2018/docs/plan/toc-tdm-en.html>.

³ For more information about CFI's mandate and values visit <https://www.innovation.ca/about/overview/our-mandate>.

- c) Expand research and job opportunities by providing support through research infrastructure for the development of highly qualified personnel.
- d) Promote productive networks and collaboration among Canadian universities, colleges, research hospitals, non-profit research institutions and the private sector.”

Expected results

The 2019 Contribution Agreement states: “In using the Amount, the Foundation is expected to help enhance the capacity of Ultimate Recipients to:

- a) attract and retain the world’s top research talent;
- b) train the next generation of researchers;
- c) enable researchers to undertake world-class research and technology development that lead to social, economic and environmental benefits for Canada; and
- d) support private sector innovation and commercialization.”

Research infrastructure

The infrastructure funded by the CFI includes state-of-the-art equipment, laboratories, databases and facilities necessary to conduct research. CFI-funded infrastructure fosters collaboration among the academic, private, public and non-profit sectors and among researchers in various disciplines. Infrastructure makes a permanent impact on institutions because it builds long-term capacity, leaving a legacy from which many researchers — and ultimately Canadians — can benefit for years.

Eligibility for CFI funding

The CFI defines eligible institutions as:

- A hospital, university or post-secondary college or educational institution that is situated in Canada and that carries on, or in the opinion of the Board is capable of carrying on, meaningful research; or,
- A non-profit organization or a trust, the activities of which are primarily carried on in Canada, and that carries on, or in the opinion of the Board is capable of carrying on, meaningful research.

Funding formula

The CFI funds up to 40 percent of a project’s research infrastructure costs, which is then leveraged to attract the remaining investment from partners in the public, private and non-profit sectors. Its multiyear funding programs allow institutions to engage in long-term strategic research planning.

In addition to supporting research infrastructure costs, the CFI contributes to the ongoing operating and maintenance needs of national research facilities through the Major Science Initiatives (MSI) Fund. We introduced a revision to the funding formula in 2019 to ensure the long-term sustainability of national research facilities by alleviating budgetary pressures for a select group of facilities with substantive operating budgets⁴ that are supported through the MSI Fund.

4 In the 2017 report, *Investing in Canada’s future: Strengthening the foundations of Canadian research*, the Advisory Panel for the Review of Federal Support for Fundamental Science recommended that the matching ratio be increased for some national-scale major research facilities from 40 to 60 percent for the following CFI-funded facilities: Compute Canada, Canadian Light Source, Canada’s National Design Network, Canadian Research Icebreaker *Amundsen*, International Vaccine Centre, Ocean Networks Canada, Ocean Tracking Network, TRIUMF and SNOLAB. [http://www.sciencereview.ca/eic/site/059.nsf/vwapi/ScienceReview_April2017-rv.pdf/\\$file/ScienceReview_April2017-rv.pdf](http://www.sciencereview.ca/eic/site/059.nsf/vwapi/ScienceReview_April2017-rv.pdf/$file/ScienceReview_April2017-rv.pdf)

Merit review

All proposals requesting CFI funding are subject to formal independent assessment. The CFI ensures that its assessment process is independent and rigorous and focuses on the degree to which a request satisfies the CFI's criteria⁵. The CFI Board makes final decisions on the projects to be funded based on review recommendations.

2.2 Program architecture

The CFI's funding architecture is designed to deliver on our mandate by responding to the current, future and evolving needs of Canadian research institutions and their researchers. The CFI supports all areas of research, and because it works directly with institutions rather than with individual researchers, institutions can ensure that their applications for funding are aligned with their own strategic research plans. Support is provided for research infrastructure through the Innovation Fund, the John R. Evans Leaders Fund, the College Industry Innovation Fund and the Exceptional Opportunities Fund while operating and maintenance costs are supported through the Infrastructure Operating Fund and the Major Science Initiatives Fund.

Innovation Fund

The Innovation Fund invests up to \$400 million in infrastructure that allows institutions to think ambitiously and propose transformative infrastructure projects that will underpin cutting-edge, globally competitive research. Projects funded through this fund help Canada remain at the forefront of exploration and knowledge generation while making substantial and meaningful contributions to generating social, health, environmental and economic benefits and addressing global challenges. Historically, the CFI has held Innovation Fund competitions at regular intervals of 24 to 36 months, and with permanent funding established in the 2019 Contribution Agreement, we expect the timing of this competition cycle to remain unchanged.

John R. Evans Leaders Fund

The John R. Evans Leaders Fund (JELF) is an institutional allocation-based fund that enables institutions to attract and retain excellent researchers by providing them with foundational research infrastructure. In turn, this enables institutions to remain internationally competitive in areas of research and technology development. Universities can submit proposals requesting up to \$800,000 from the CFI. There are five different streams under the JELF: an unaffiliated stream and four streams offered in partnership with the Canada Research Chairs and Canada Excellence Research Chairs programs, or with the federal research funding agencies.

College-Industry Innovation Fund

The College-Industry Innovation Fund seeks to enhance the research capacity of colleges by providing them with state-of-the-art research infrastructure. The fund is intended to support substantial research infrastructure projects valued at up to a million dollars that will augment the existing applied research and technology development capacity of colleges, and allow them to respond to important needs beyond the academic sector.

5 More details on the merit-review process can be found in our Policy and program guide: <https://www.innovation.ca/awards/policy-and-program-guide-and-supplemental-information>.

Exceptional Opportunities Fund

The CFI created the Exceptional Opportunities Fund to assist institutions in seizing unique and time-sensitive opportunities by supporting infrastructure projects that need to be considered outside the CFI's regular competitions.

Infrastructure Operating Fund

The Infrastructure Operating Fund (IOF) contributes to the incremental operating and maintenance costs associated with projects funded by the CFI to maximize the efficient use of research infrastructure. The institution's IOF allocation is calculated as 30 percent of the CFI contribution for eligible projects. Institutions can distribute their IOF allocation based on actual operating and maintenance needs as opposed to allocating the exact amount to the project that generated it thus giving institutions maximum flexibility to support active CFI projects with different needs and scope while ensuring accountability.

Major Science Initiatives Fund

The Major Science Initiatives Fund provides multi-year support toward the operating and maintenance needs of national research facilities. A national research facility is defined by CFI as one that addresses the needs of a community of Canadian researchers representing a critical mass of users distributed across the country. CFI support through this competition is intended to secure and strengthen the facilities, enable them to operate at an optimal level and to have their scientific and technical capabilities fully exploited, and promote the adoption of best practices in governance and management.

Additional information on CFI funds is available in the CFI's [Policy and program guide](#), found under "Apply & manage awards" at Innovation.ca.

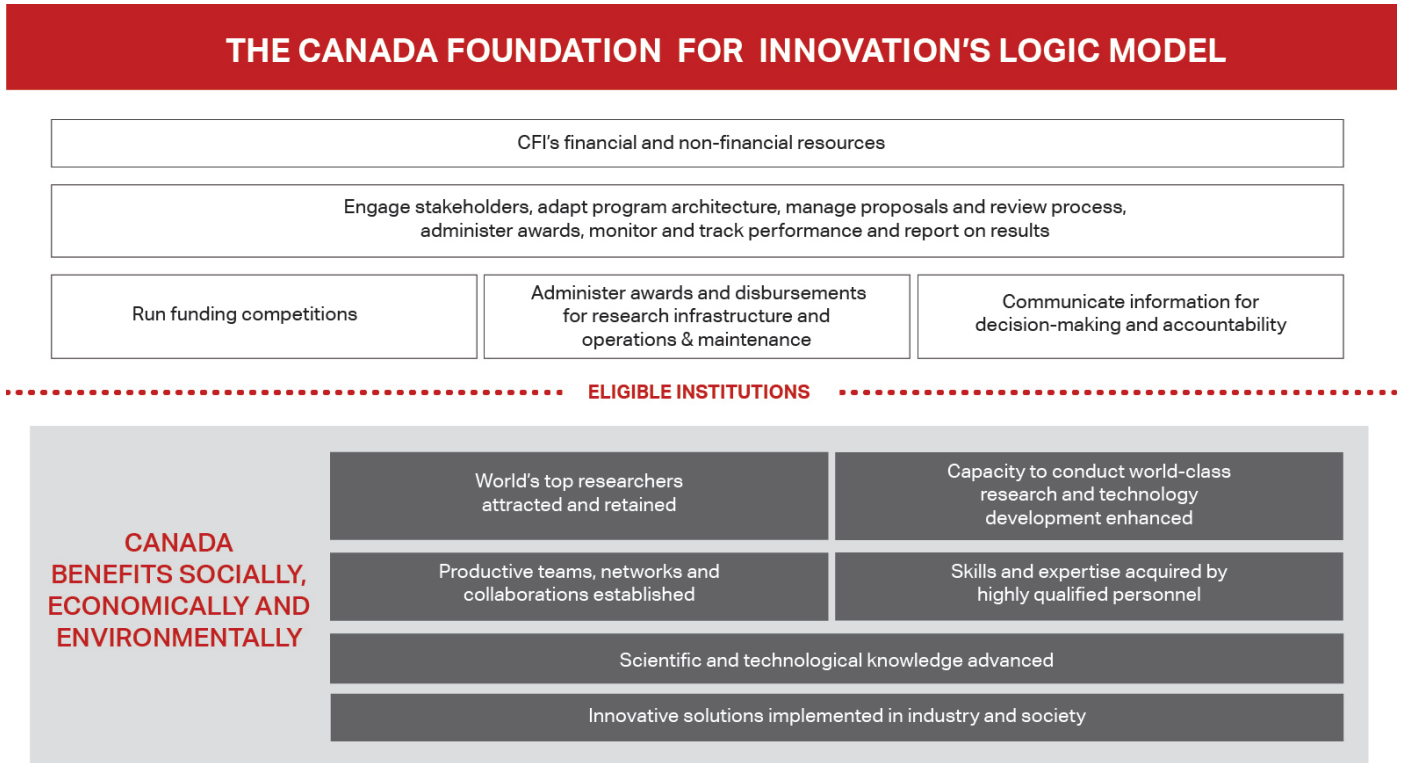
2.3 Logic model

The CFI logic model identifies the relationships between the organization's inputs, activities and outputs, and the outcomes and impacts that are achieved by the ultimate recipients as a result of infrastructure funding (Figure 1). It is through these inputs, activities and outputs that the CFI enables eligible institutions to make progress on their expected results and for the CFI to achieve its objectives. Not all expected results and objectives are explicitly listed in the CFI logic model since many are interdependent and overlapping. The CFI has determined that it is clearer to have some of these captured through broader outcome and impact statements.

Not depicted in the model are important considerations such as external influences and risks. External influences can be defined as the environment in which the organization exists and includes a variety of external factors that interact with and influence the CFI's ability to achieve its intended outcomes.

Examples include availability of funding (i.e. partner funding to complement CFI funds, research operating funds) and the level of excellence of submitted proposals. These external factors and risks along with mitigation measures are outlined as part of a risk assessment that was completed as part of the PERAF review, which is addressed in Chapter 3.0.

Figure 1: Canada Foundation for Innovation’s logic model



2.3.1 Inputs, activities and outputs

Inputs are the financial and non-financial resources used to deliver activities. The primary activities of the CFI include competition design and delivery and oversight of funded projects. The activities result in outputs such as competitions launched, awards and disbursements to successful institutions, and reports and communication products — all of which are directly within the purview of the CFI.

2.3.2 Description of outcomes and impacts

Canada benefits socially, economically and environmentally — The innovative research that results from the confluence of world-class infrastructure and great minds leads to a vibrant ecosystem that generates knowledge and enables discoveries to improve public policy, and fosters the commercialization of discoveries, all of which improve the overall quality of life for Canadians.

- **Capacity to conduct world-class research and technology development enhanced** — State-of-the-art infrastructure, along with planning for its optimal use, enriches the training environment at eligible institutions and enhances their ability to compete globally in research and technology development.
- **World's top researchers attracted and retained** — State-of-the-art research infrastructure enables eligible institutions to attract and retain researchers who are highly productive and recognized in their respective fields.
- **Productive teams, networks and collaborations established** — State-of-the-art infrastructure together with world-leading researchers supports eligible institutions in bringing together a diverse and multi-sectoral community of users and enhancing networks and collaborative arrangements.

- **Skills and expertise acquired by highly qualified personnel** — State-of-the-art infrastructure allows students, postdoctoral fellows, other trainees and technical staff to develop skills in a world-class research environment and gain knowledge from leading researchers in their fields.
- **Scientific and technological knowledge advanced** — State-of-the-art infrastructure mobilizes research teams to produce, collect, analyze and interpret data that advances scientific and technological knowledge and permits new discoveries and paradigms.
- **Innovative solutions implemented in industry and society** — Uptake and application of research knowledge enables the implementation of innovative products, services, policies and practices.

2.4 Key stakeholders and beneficiaries

The CFI has a number of key stakeholders and beneficiaries. These include:

Beneficiaries

Canadian universities, colleges, research hospitals, and non-profit research institutions — Research infrastructure projects funded by the CFI are under the control of their respective institutions. This support helps these institutions carry out world-class research and technology development that benefits Canadians.

Stakeholders

- **Researchers** — Researchers are the users of CFI-funded research infrastructure. Access to state-of-the-art infrastructure allows them to conduct leading-edge work. It also serves to attract and retain top minds at Canadian institutions, and promote productive research collaborations and networks.
- **Highly qualified personnel (HQP), including postdoctoral fellows, graduate students, undergraduates and technicians or professionals** — CFI funding provides HQP with opportunities to train in state-of-the-art environments with world-class researchers. Funding also supports the development of technical personnel for the operation and maintenance of the research infrastructure.
- **Governments and funding organizations** — The CFI is a key component of the Government of Canada's science and innovation portfolio. As an instrument of government policy, the CFI advances the objectives and priorities of the Government of Canada and works alongside federal and provincial governments and in partnership with federal and provincial granting agencies and organizations to support and strengthen the research environment in Canada.
- **Private-sector firms and non-profit organizations** — These stakeholders are contributing partners to CFI-funded projects and users of the knowledge generated from these projects. The research coming out of CFI-funded labs and facilities helps businesses develop new or improved products, processes or services, gain intellectual property rights, negotiate licencing agreements and create spin-off companies.
- **The Canadian public** — The Canadian public has a stake in the CFI since taxpayer dollars are used to fund CFI's programs and operations. They are also the ultimate beneficiaries of the research that flows from CFI-funded infrastructure, which contributes to the prosperity and quality of life of Canadians.

3.0 ORGANIZATIONAL RISK ASSESSMENT AND MANAGEMENT STRATEGY

3.1 Risk assessment and mitigating measures

Through a systematic risk identification and assessment process in May 2019, CFI management revisited and updated the analysis of the key risks faced by the CFI. The CFI also reflected on the adequacy of existing risk mitigation measures and ensured that there is a cost-effective balance between the risk levels, investments in response measures and stakeholder interests.

Methodology

In our 2019 update of the corporate risk profile, we assessed risks in the context of events or circumstances that could affect the achievement of the CFI's objectives and strategic directions, and the outcomes described in the logic model. We conducted the risk assessment as follows:

- Reviewed data analysis, documentation reviews and interviews with representatives of senior management and the Board.
- Used the results of the documentation review, interviews and data analysis to develop an inventory of risks.
- Administered a survey through which senior management and the Board selected their top 10 risks from the inventory.
- Measured these risks through a risk assessment workshop with members of CFI senior management. In the workshop, participants were asked to measure the impact and likelihood of each risk, giving consideration to the existence or effectiveness of any controls or management practices related to these risks. Impact and likelihood were each measured using a five-point scale through the use of anonymous voting technology.

Key risks and mitigating measures

Ten risks spanning five different risk areas were identified as having higher than average potential likelihood of occurrence and potential impact. None of these risks relate to human resources. This is because management and the Board have a high level of comfort with existing controls to manage these risks, and believe there is an overall low likelihood of occurrence for this category of risk.

Table 1: Key risks and mitigating measures

Strategic risks	
Risks	Mitigation measures
<p>1. Alignment with the needs of funder — Risk that CFI's activities do not continue to align with the needs and expectations of the federal government (both bureaucratic and political).</p>	<ul style="list-style-type: none"> • The CFI undertakes regular ongoing discussions with Government of Canada officials (ISED) on the requirements for research infrastructure, the leveraging of benefits, the multidisciplinary reach and impacts of CFI investments and ideas for the future of the CFI and the research and innovation ecosystem. • The CFI regularly provides parliamentarians with evidence on the ways that infrastructure assists in attracting and retaining top research talent, enables world-class research and supports innovation. • The CFI leads and participates in outreach and communications activities specifically targeted to parliamentarians. • The CFI issues material to demonstrate how infrastructure funding has been and continues to be responsive to government priorities and research community requirements. • The CFI disseminates success stories and results of performance and evaluation assessments to demonstrate the results of CFI investments. • Responsibilities for conducting engagement activities have been defined within the management team. • Funders are given opportunities to provide input on activities, processes and funding mechanisms. • The CFI periodically assesses whether funding mechanisms are addressing stakeholder needs and, when necessary, makes appropriate adjustments in the program architecture and fund delivery mechanisms.

Strategic risks	
Risks	Mitigation measures
<p>2. Understanding — Risk that key stakeholders, including federal and provincial funders (both bureaucratic and political), do not understand the activities, outcomes and impacts (i.e. benefits) associated with CFI funding and its progress against its strategic priorities.</p>	<ul style="list-style-type: none"> • The CFI reports on and communicates to federal and provincial funders on the outputs, outcomes and impacts of the research they have enabled. • The CFI maintains a dialogue with the Government of Canada and with other funding agencies on its role and programs and on the level of funding provided. • The CFI Research Facilities Navigator fosters and enables communication and linkages between CFI-funded institutions and external stakeholders in the private and public sectors. • The CFI encourages the research community to communicate with government about the value of CFI funding. • Funders are given opportunities to provide input on activities, processes and funding mechanisms.
<p>3. Inability to measure and promote value — Risk that CFI is unable to effectively measure, demonstrate, and promote the value of CFI funding and related return on investment (end results, economic and social impacts, institutional success rates, and value proposition).</p>	<ul style="list-style-type: none"> • The Performance, Evaluation, Risk and Audit Framework (PERAF) exercise periodically reviews and updates information requirements needed to inform strategic business decisions and directions. • The CFI consistently reviews and updates the information captured for both structured data and unstructured data to support impact analysis. • The CFI identifies information to measure and demonstrate value of funding. • The CFI develops reports on the outputs, outcomes and impacts of the research enabled by infrastructure to articulate the value of the CFI.
<p>4. Reputation — Risk that CFI's reputation is adversely affected by an incident / event / decision associated with CFI-funded infrastructure or with decisions by governing bodies that they are associated with.</p>	<ul style="list-style-type: none"> • Crisis communication plan is in place. • Daily scan of media and social media outlets to identify emerging issues and potential threats. • The CFI conducts risk-based monitoring of projects in accordance with the Tool for Risk Assessment and Management (TRAAM). • The CFI uses its position at Canadian Research Coordinating Committee meetings to influence direction of the committee and accompanying government representatives that make up the committee.

Governance risks	
Risks	Mitigation measures
<p>5. Turnover at Board of Directors — Risk of excessive turnover of Board Directors in any one year, resulting in a number of new Directors and impacting the ability of the Board to provide quality oversight.</p>	<ul style="list-style-type: none"> • Promote Governor in Council (GIC) appointment openings through network. • Established Board on-boarding process and orientation materials. • Created candidate profiles to support the replacement process. • Developed comprehensive Board materials.
Institutional / Operational risks	
Risks	Mitigation measures
<p>6. Sufficient capacity at institutions — Risk that institutions do not have sufficient capacity to support major and unique initiatives (Major Science Initiatives, multi-jurisdictional, and other large initiatives).</p>	<ul style="list-style-type: none"> • Institutional capacity is assessed at the application phase, by CFI, as well as matching funders. • The CFI conducts risk-based monitoring of projects in accordance with the Tool for Risk Assessment and Management (TRAAM), and conducts mid-term reviews for MSIs. • The CFI conducts consultations with the research community to determine programming needs. • Canada's Fundamental Science Review (2017) supported increase of MSI funding from 40% to 60%. • Provision of funding competitions at regularly recurring intervals through the Innovation Fund. • CFI funding mechanism's agility, its designed flexibility and continuous improvement help meet institutional pressing needs to access research infrastructure.
<p>7. Matching funding — Risk that partner and matching funding is not secured or sustained in a timely manner due to changes in partners' needs, provincial government mandates, priorities, economic downturn, and/or limited uptake.</p>	<ul style="list-style-type: none"> • Provincial partners are given opportunities to provide input on activities, processes and funding mechanisms. • The priorities of provincial partners are taken into consideration in the application review process. • The CFI communicates the value of the 40 percent funding provided by the CFI. • The CFI communicates with provinces on funding parameters and competition schedules to assist them in their planning. • CFI funding is provided only when partner funding has been secured. There is flexibility on timelines when this is needed.

Operational risks	
Risks	Mitigation measures
<p>8. Business continuity — Risk that the CFI is not able to recover / continue key systems (i.e. CFI Awards Management System (CAMS)) and critical operations in a timely manner in the event of an incident.</p>	<ul style="list-style-type: none"> • Regular data-backup plans (e.g. for delays or new releases) and maintenance operations are in place. • Manual processes exist that can be relied on in the event of business interruption. • Key systems and documents are stored in a Cloud storage and there are mirror back-ups that are available on different servers. • Key business continuity time has been identified by management, as being before applications are due and before Multidisciplinary Assessment Committees meet. • A key priority for the IT group is to look at continued system availability.
Information technology / Information management risks	
Risks	Mitigation measures
<p>9. Security — Risk of security breach and loss of, or inappropriate access to, personal or confidential data. (e.g. researcher data, banking, HR, travel information).</p>	<ul style="list-style-type: none"> • Conducted two security reviews on CAMS and continues to improve. • A spam filter is in place to screen e-mail communications received by the CFI. • Management indicates that staff has a high-level of security awareness.
<p>10. Information management — Risk that information is not managed and/ or accessible in a manner to support and enable effective and timely decision- making.</p>	<ul style="list-style-type: none"> • Data Governance Committee has been established. • CFI has an ongoing information management project which is a regular agenda item at Steering Committee meetings, led by two champions.

We review these risks periodically and modify strategies and priorities as needed. We update the above table of key risks and mitigating measures annually and include it in our corporate plan, which is available at Innovation.ca.

3.2 Monitoring and contribution audits

This section provides a description of the CFI's monitoring and contribution audit practices. Overall, risk and performance are monitored through an integrated strategy which involves monitoring the achievement of established outputs and outcomes (see Chapter 4.0), as well as monitoring institutional compliance and project results through detailed operational and financial procedures (see details below).

3.2.1 Monitoring

Monitoring outputs and outcomes

The CFI monitors the use of funds on an ongoing basis to ensure that the established outputs and outcomes are being achieved. This is accomplished through our Performance measurement and evaluation strategy (see Chapter 4.0).

In these activities, the CFI obtains qualitative and quantitative information on outputs and outcomes. This information is critical in informing decisions and ensuring that the CFI is achieving its objectives.

Project monitoring

The CFI has adopted a risk-based approach for its oversight of funded projects. The nature and extent of the CFI's oversight activities are tailored to the risks facing each institution and project, since the risks vary greatly from one institution or project to the next. By tailoring the nature and extent of its management and oversight practices to the risks of each project and institution, the CFI can benefit from more effective and efficient mechanisms.

To help identify project-related risks and establish an appropriate level of oversight for each project, the CFI has developed a Tool for risk assessment and management (TRAAM). This tool has two components: the CFI's risk assessment and a summary of the CFI's oversight activities commensurate with the identified project-related risks.

The CFI works collaboratively with each institution in the management of project-related risks. Input from the institution on its management and oversight activities is incorporated into the TRAAM; this may influence the CFI's risk assessment and its level of oversight activities. Over the course of each project, we revisit our risk assessment annually, or more frequently if needed. We also modify our oversight activities to reflect any changes in risks for the project.

The CFI relies on a variety of activities for project monitoring, including monitoring recipients' compliance with terms and conditions of funding.

Monitoring visits

We conduct monitoring visits at recipient institutions to assess the adequacy and effectiveness of policies, processes and controls in place for the management of CFI-funded projects. This helps 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 objectives of the monitoring visits are:

- Oversight
 - Obtain an understanding of key policies, practices, processes and controls in place at the institution for the management of CFI awards and assess their adequacy.

- Value to the institution
 - Disseminate information on CFI policies, guidelines and expectations for accountability and integrity, as well as share examples of good practices used by recipient institutions in managing CFI funds.
 - Highlight opportunities to increase efficiencies.
- Feedback and knowledge building
 - Obtain feedback from the institution that helps the CFI ensure that its policies, guidelines and expectations are clear and adequate.
 - Gain community knowledge in specific areas of interest to the CFI.

We use a risk-based approach to select institutions for monitoring visits. We consider various risk factors, such as the total value of ongoing infrastructure projects at an institution, along with other risk factors identified through the TRAAM. Institutions that are subject to a monitoring visit are also subject to a review of their Infrastructure Operating Fund expenditures. This review occurs concurrently with the monitoring visit.

Approval of infrastructure changes

Recipients must use their CFI funds to purchase or develop the infrastructure and to cover the eligible costs agreed to by the CFI under their award agreement. In a small number of instances, changes to an infrastructure project may be necessary. In these instances, the institution must ensure that the proposed change is acceptable.

Prior approval from the CFI is required if the cost of a new item is significant or for any change that has a negative impact on the project and its research objectives regardless of cost implications. We also monitor timelines for the acquisition of the infrastructure. The institution must notify the CFI if there is a change in the designated project leader or if the institution is unable to carry out or complete the project.

Financial reporting

Financial reports provide information on individual project costs, funding and timelines for the acquisition of the infrastructure. Project timelines are reviewed and follow-up procedures are performed if there are significant delays in the acquisition of the infrastructure. The frequency of financial report submissions varies based on project complexity and risk. It ranges from quarterly reporting to reporting every two years.

In its final financial report for each project, the institution must describe all changes to the infrastructure from the initial proposal. The CFI reviews all spending related to a project, including infrastructure changes and new items (if any), following the receipt of the final financial report, to ensure they are acceptable.

Other monitoring activities

Depending on the risks identified through the TRAAM for specific projects, the CFI may perform other monitoring activities. These could include, for example, project implementation meetings, project status reports, midterm reviews, ad-hoc visits, etc. These activities are tailored to each project and help ensure the risks identified are being managed adequately.

3.2.2 Contribution audits

The CFI conducts audits, specified audit procedures or cost assessments (hereafter referred to as audits) to ensure that the funding received by institutions has been used in accordance with agreed-upon terms and conditions of the award agreements, and with applicable policies and guidelines.

The CFI uses a risk-based audit methodology and a risk-based, non-statistical approach to select projects to be audited. Using the TRAAM, we consider various risk factors related to the appropriateness of expenditures, such as the value of the CFI contribution and of the in-kind contributions, the complexity of the project, and the CFI's experience with both the project and institution (including findings from monitoring visits). All projects with a CFI contribution exceeding \$10 million are subject to an audit.

The CFI reviews project risks and assesses the need for audits periodically. The risk of a project determines the scope, timeline, nature and extent of the audit activities. Audits are conducted using either external auditors or internal resources.

A brief summary of the CFI's contribution audit methodology is provided in Table 2.

Table 2: Summary of the CFI's contribution audit methodology

INFRASTRUCTURE PROJECTS
Projects with a CFI contribution of more than \$10 million
All projects with a CFI contribution exceeding \$10 million are automatically subject to an audit. The first audit activities related to these projects normally take place two years after award finalization. The need for additional audit activities in subsequent years (if any) is determined based on the risk of the project.
Projects with a CFI contribution of less than or equal to \$10 million
The risk of the project determines if there is a need for an audit. It also determines the scope, timeline, nature and extent of the audit activities. In addition, the CFI selects a few projects for audit every year on a random basis to ensure that it obtains appropriate coverage of its population of projects.
INFRASTRUCTURE OPERATING FUND (IOF)
Institutional recipients subject to a monitoring visit are also subject to a review of their Infrastructure Operating Fund expenditures. This review occurs concurrently with the monitoring visit.

3.3 Internal auditing

The Institute of Internal Auditors defines the internal audit function as an independent, objective assurance and consulting activity designed to add value and improve an organization's operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control and governance processes.

The internal audit function provides the Board of Directors (through the Audit and Finance Committee) and CFI management with sufficient and timely assurance and consulting services on aspects of the CFI's risk management, control and governance practices.

The internal audit function has responsibility for the following activities:

- A risk assessment to determine areas of significant risk facing the organization;
- Development of risk-based internal audit plans in consultation with the management team, to be approved by the Board of Directors (through the Audit and Finance Committee);

- Development of terms of reference for every audit;
- Quality control throughout the audit engagements; and,
- Preparation of final internal audit reports for approval by the Board of Directors (through the Audit and Finance Committee).

The CFI outsources its internal audit function. A risk-based internal audit plan has been developed and is updated on a regular basis. Internal audits are performed in accordance with this plan as approved by the Board of Directors through the Audit and Finance Committee.

Results of contribution audit activities and other external audits and reviews as well as changes in circumstances are considered on an ongoing basis to determine whether significant changes in risks facing the CFI have occurred and to assess whether any modifications to planned internal audit activities are required.

4.0 PERFORMANCE MEASUREMENT AND EVALUATION STRATEGY

Performance measurement and evaluation are complementary and mutually reinforcing activities. Effective performance measurement systems support ongoing organization-wide monitoring and are important data sources for a range of evaluation activities. Evaluation provides a more in-depth understanding of why results were or were not achieved⁶.

The CFI's performance measurement and evaluation strategy describes how the organization effectively tracks and assesses its performance in relation to its objectives and expected results. The CFI gathers, analyzes and reports accurate, consistent and timely information that demonstrates the need for and relevance of the CFI, its funds and the outcomes of its investments to the CFI Board of Directors, the Government of Canada and the Canadian public.

The approach

The CFI recognizes its responsibility in demonstrating the impacts of its investments to assess the efficiency of public spending, and to assess its contribution to achieving social and economic objectives. However, there are many complexities associated with measuring and evaluating the outcomes of CFI investments. Not only is research and innovation inherently risky, but outcomes and impacts linked to research infrastructure are difficult to measure (e.g. issues related to time lag, attribution, etc.). As such, the CFI uses a range of data and assessment approaches to evaluate progress at the organizational level through to the societal level.

4.1 Performance measurement strategy

Performance measurement refers to the systematic collection and analysis of information and data that are used to track and assess how the CFI is progressing toward achieving its objectives and expected results. Key performance indicators are measured regularly to provide the CFI with information for management, learning and accountability purposes, as well as to inform evaluation activities.

- **Performance measurement framework** — The performance measurement framework is aligned to the organization-wide logic model and provides details on key performance measures and responsibility for data collection. These performance measures, presented in the table in the [Appendix](#), inform annual project reporting, monitoring activities, outcome measurement, evaluations and other outcome studies at the CFI.

To support information requirements for senior management as well as evaluation, performance measurement is conducted on an ongoing basis.

4.2 Evaluation strategy

We have considered current strategic priorities and information requirements of the CFI to develop the organization's evaluation strategy. We may identify and conduct other studies in response to emerging interests and priorities. Although not described within the evaluation strategy, other activities within the CFI also address accountability and may inform studies, such as monitoring and audit activities by the organization's finance team and consultations by its programs team. This section further details how the CFI supports its need for performance and relevance information.

6 Treasury Board of Canada Secretariat. *Supporting Effective Evaluations: A Guide to Developing Performance Measurement Strategies*. December 2014. <http://www.tbs-sct.gc.ca/cee/dpms-esmr/dpms-esmr02-eng.asp>

Evaluation

Evaluation refers to the systematic and objective assessment of an ongoing or completed project, program or policy, including its design, implementation and results. An evaluation aims to determine the relevance and fulfillment of objectives, efficiency, effectiveness, impact and sustainability of funded infrastructure projects. It should provide information that is credible and useful and, where appropriate, make recommendations to guide the organization's decision-making process⁷.

The approach

We periodically undertake various types of evaluations to support organizational learning, to inform operational and strategic decisions and to remain accountable for the use of public funds. We participate in evaluations of joint or collaborative programs such as the Canada Research Chairs program. We also evaluate our own programs, activities and initiatives as deemed useful for program design and delivery. Through our evaluation activities, we examine issues such as relevance, efficiency, effectiveness, as well as performance, impact and sustainability.

A performance, analytics and evaluation plan is developed annually and considers current strategic priorities and key information requirements of the CFI. The plan will include activities to support an overall performance evaluation of the organization, led by Innovation, Science and Economic Development (ISED) Canada every five years, as per the CFI's contribution agreement with the Government of Canada.

⁷ Organisation for Economic Co-operation and Development. *Glossary of Key Terms in Evaluation and Results-Based Management* (2010). December 2010. <http://www.oecd.org/development/peer-reviews/2754804.pdf>

5.0 CONCLUSION

This document is the result of a review of the CFI's 2015 Performance, evaluation, risk and audit framework (PERAF). Changes from the previous PERAF reflect an improved alignment to current programs and processes as well as to the 2019 Contribution Agreement. It included an organization-wide dialogue for the review and update of:

- The CFI logic model;
- The organizational risk assessment and risk management plan;
- The performance measurement framework; and,
- The overarching evaluation strategy.

The review of the PERAF demonstrates the CFI's continued commitment to improve the information available for its management, accountability and communication purposes. Since the PERAF is intended to be a living document, it will be reviewed and updated as necessary to ensure that the activities and information requirements remain appropriate and relevant for the CFI.

GLOSSARY OF TERMS

Accountability

The obligation to demonstrate and take responsibility both for the means used and the results achieved in light of agreed expectations.

Activities

An operation or work process internal to an organization, which uses inputs to produce outputs.

Effectiveness

The extent to which an organization, policy, program or initiative is meeting its expected results.

Efficiency

The extent to which an organization, policy, program or initiative produces outputs in relation to resources used.

Evaluation

The application of systematic methods to periodically and objectively assess effectiveness of programs in achieving expected results; their impacts, both intended and unintended; their continued relevance; and, alternative or more cost-effective ways of achieving expected results.

Expected result

An outcome that a program, policy or initiative is designed to produce.

Impacts

Impacts represent the highest level of outcome that can be reasonably attributed to the organization in a causal manner and are the consequence of one or more long-term outcomes having been achieved.

Input

The financial and non-financial resources used by organizations, policies, programs and initiatives to produce outputs and accomplish outcomes.

Logic model

A depiction of the causal or logical relationships between activities, outputs and the outcomes of a given organization, program, policy or initiative.

Outcome

An external consequence attributed, in part, to an organization, policy, program or initiative. Outcomes are not within the control of a single organization, policy, program or initiative; instead, they are within the area of the organization's influence.

Outputs

Direct products or services stemming from the activities of an organization, policy, program or initiative, and usually within the control of the organization itself.

Performance, evaluation, risk and audit framework (PERAF)

A CFI initiative inspired by the Treasury Board Secretariat's guidelines for developing performance measurement strategies. It serves as a guide for how the organization manages risks and tracks and assesses its performance.

Performance measure

A quantitative or qualitative means of measuring an output or outcome, with the intention of gauging the performance of an organization, policy, program or initiative.

Performance measurement

The process and systems of selection, development and ongoing use of performance measures to guide decision making.

Performance reporting

The process of communicating evidence-based performance information. Performance reporting supports decision making, accountability and transparency.

Tool for risk assessment and management (TRAAM)

A tool that assists the CFI with identifying project-related risks and establishing an appropriate level of oversight for each project.

APPENDIX: PERFORMANCE MEASUREMENT FRAMEWORK

Table 1: Performance measurement framework

	PERFORMANCE MEASURE	RESPONSIBILITY FOR DATA COLLECTION
Context		
Research funding environment	Federal granting agency funding	Performance, Analytics & Evaluation (PAE)
	CFI disbursements as a percentage of federal granting agency funding	PAE & Finance
	CFI commitments for new awards as a percentage of federal granting agency funding	PAE & Finance
Inputs		
CFI's financial and non-financial resources	Attendance of Directors	Secretary to the Board & PAE
	Attendance of Members	Secretary to the Board & PAE
	Board of Director self-evaluation	Secretary to the Board & PAE
	Degree of Board of Director awareness of strategy	Secretary to the Board & PAE
	Federal budget announcements to the CFI	PAE
	Federal payments to the CFI	Finance
	Deferred contributions available for expenses of future years	Finance
	CFI's annual operating expenses	Finance
	Operational expenses as a percentage of disbursements to eligible institutions	Finance
	CFI operating costs as a percentage of government funding received that year	Finance
	Full-time staff	Human Resources (HR) & PAE
	Training expenses to salary and benefits	HR & PAE
	Annual staff turnover rate	HR & PAE
	Average length of service	HR & PAE
	Level of staff engagement	Management
Level of staff satisfaction	Management	

	PERFORMANCE MEASURE	RESPONSIBILITY FOR DATA COLLECTION
Activities		
Engage stakeholders, adapt program architecture, manage proposals and review process, administer awards, monitor and track performance and report on results	Events and outreach	PAE, External Relations and Communications (ERC), Finance, Programs, senior management
	Full proposals received	Programs
	Rate of use of JELF allocations	Programs & Finance
	Rate IOF allocation was paid out	Programs & Finance
	Applicants by designated group	PAE
	Time to finalization for projects valued at up to \$1M	PAE
	Time to finalization for projects with a value exceeding \$1M	PAE
	Monitoring visits completed	Finance
	Contribution audits completed	Finance
	Financial reports and project progress reports received by CFI deadlines	Finance
Outputs		
Run funding competitions	Level of satisfaction with program design	Management & PAE
	Level of satisfaction with program delivery	Management & PAE
Administer awards and disbursements for research infrastructure and operations and maintenance	Number of new awards	Programs & Finance
	CFI commitments for new awards	Programs & Finance
	Successful applicants by designated group	PAE
	Project costs leveraged	Finance
	Number of awards with disbursements	Finance
	CFI disbursements	Finance
	Proportion of operation and maintenance (O&M) to infrastructure funding disbursed	Programs & Finance
Communicate information for decision-making and accountability	Published editorials	ERC
	Unique visitors to Innovation.ca	ERC
	Email subscribers	ERC
	Open rate of email communications	ERC
	Email communication engagement rate	ERC
	Social media followers	ERC
	Social media engagement rate	ERC
	CFI mentions in the media	ERC
	Level of client satisfaction	Management & PAE
	Level of stakeholder satisfaction	Management & PAE

Outcomes		
World's top researchers attracted and retained	Researchers attracted to the institution due to the CFI-funded infrastructure	PAE
	Researchers retained by the institution due to the CFI-funded infrastructure	PAE
Capacity to conduct world-class research and technology development enhanced	Rating of the quality of the CFI-funded infrastructure, by type	PAE
	Useful remaining life of the CFI-funded infrastructure, by type	PAE
	Extent to which the CFI-funded infrastructure was used	PAE
Productive teams, networks and collaborations established	Researchers at the institution advancing their research	PAE
	Researchers outside the institution advancing their research	PAE
	Proportion of private, public and not-for-profit sector infrastructure users	PAE
	Proportion of external infrastructure users from outside of Canada	PAE
	Research collaboration enabled by the CFI-funded infrastructure	PAE
Skills and expertise acquired by highly qualified personnel	Impact the CFI-funded infrastructure had on the quality of the training environment	PAE
	Trainees using the CFI-funded infrastructure as a key resource	PAE
	Technical personnel trained on the use and maintenance of the CFI-funded infrastructure	PAE
Scientific and technological knowledge advanced	Research outputs enabled by the CFI-funded infrastructure	PAE
	Intellectual property rights linked with the CFI-funded infrastructure	PAE
Innovative solutions implemented in industry and society	Licensing agreements connected to the CFI-funded infrastructure	PAE
	Creation of spin-off companies related to the CFI-funded infrastructure	PAE
	Benefits enabled by the CFI-funded infrastructure	PAE
	Creation of new jobs connected to the CFI-funded infrastructure	PAE
	Connections made through the Research Facilities Navigator	ERC