

## TIPS: CFI – INNOVATION FUND 2023

Research Services Office

### OVERVIEW

The Canada Foundation for Innovation (CFI) Innovation Fund (IF) provides investments in research infrastructure across the full spectrum of research, from the most fundamental to applied through to technology development, and across the range of disciplines. Projects funded through the IF will help Canada remain at the forefront of research excellence while also generating social, health, environmental and economic benefits, and helping to address global challenges.

The program has introduced a threshold of excellence, based on expert reviewer ratings of the six assessment criteria (see page 8 of the [CFI-IF 2023 Call for Proposals](#) for definition). Only those applications that meet this threshold in the first stage of review (Expert Committees) will move on to the next review stage (Multidisciplinary Assessment Committee).

This document provides applicants with tips and strategies to build a strong and persuasive proposal that meet and exceeds this threshold of excellence. The document should be read in conjunction with the [Call for Proposals](#) and the [CFI Policy and Program Guide](#).

### GENERAL TIPS

#### SUCCESSFULLY FRAMING YOUR CFI IF PROPOSAL

The Research Services Office has conducted reviews of the comments of the Expert Review Committees for the past four IF competitions (2012, 2015, 2017, and 2020). As you construct your application, keep in mind the following common challenges:

**Sufficient, relevant detail:** Applicants need to balance readability with a level of detail that permits reviewers to assess whether the standard for each criterion has been met. This requirement applies to all sections of the proposal. Committees have noted that “generic” responses and a lack of details/clarity prevent an effective determination of the extent to which applicants meet the stated category criteria. The committees were not merely requesting longer responses, but asked that applicants provide the **relevant** and **concrete details** that would allow them to determine the degree to which the particular criteria are satisfied.

**A well-integrated project:** All elements of the project should be clearly linked to one another. This expectation applies within objectives/criteria—research activities should relate clearly to research aims, for example—as well as across objectives/criteria: the team’s expertise should clearly relate to the research, and the research outcomes and benefits should flow clearly from the infrastructure and its use. Reviewers are looking for **cohesion across the proposal** and a sense that the proposal represents a unified program.

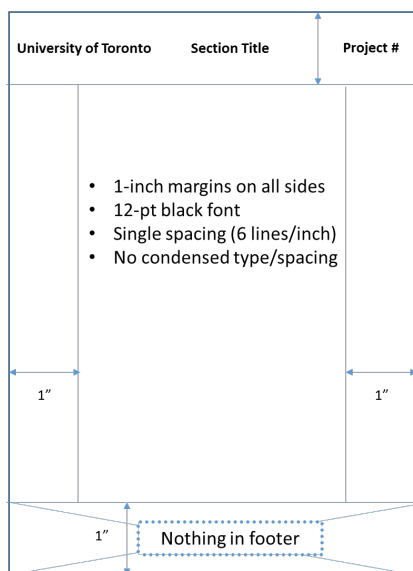
**An innovative research program:** The CFI seeks to support innovative research programs or technology development – that does not mean the requested infrastructure must itself necessarily be innovative or leading edge. The infrastructure should be essential and necessary; the proposed program of research should be innovative. The project should also be of appropriate maturity and offer the best potential for achieving a transformative impact.

### FORMATTING & STYLE

Not all reviewers will give your application an in-depth review. Good formatting will allow them to locate the information they need and will create a favourable first impression for your proposal.

- Throughout the application, choose a logical heading system (mimicking the headings/language/terms used in the instructions).
- Avoid lengthy paragraphs and use bulleted or numbered lists whenever appropriate.
- Use persuasive and optimistic language. Do not say that you *hope* something will happen—say that it *will* happen. Do not say that the research will *progress smoothly*—say that it will *break new ground*. Emphasize innovative aspects.
- Write new material whenever possible and customize existing material to fully address the IF criteria. Reviewers can easily tell when material has simply been cut and pasted from a previous grant application.
- Avoid copying and pasting the same passages into different parts of the application. Some information and key ideas will be mentioned more than once, but you should not repeat identical sentences and paragraphs.
- Figures and diagrams may be included in Assessment Criteria attachments. Be sure that figures and images are clearly labelled and are legible.

**Your proposal attachments must adhere to CFI’s page formatting guidelines.**



- Margins should be no less than 2.5 cm (1 inch) around the page.
- In the header, indicate the lead institution on the top left, the title of the section in the middle, and the project number on the top right of each page.
- Do not include any information in the footer, as this area will be used for automatic page numbering. Do not insert page numbers into individual documents.
- CFI notes that legibility should take precedence in the selection of an appropriate font for use in the proposal. **Applicants are strongly encouraged to use a 12-point, black-coloured font and single-line spacing (six lines per inch) with no condensed type or spacing.**
- The file size must not exceed **20 Mb**.

## PROJECT SUMMARY (maximum 3 pages)

The project summary provides a general description of the research or technology development activities and the requested infrastructure. The project summary is the only section of the proposal the CFI will provide to the Special Multidisciplinary Assessment Committee to help with its deliberations, so the summary must concisely and persuasively explain how the proposed project meets the three competition objectives (described in more detail below).

- Use language appropriate for a multidisciplinary committee. Avoid abbreviations and jargon.
- First impressions count! Write an opening paragraph that outlines the broad vision for your research, the role of the requested infrastructure in realizing that vision, and why the research or technology development is important to Canada.

- Present a clear focus—especially when there is a list of projects involved—and a clear outline of issues to be addressed. Demonstrate that this is a cohesive project.
- Describe the requested infrastructure in short, bulleted paragraphs: **what it is, what it does, and why it is important**. Reviewers want to quickly see what it is you are requesting.
- Clearly address all three competition objectives; make sure that each objective is easily identifiable and that there is a clear explanation of **how** the proposed work addresses each of these objectives.

## ASSESSMENT CRITERIA

Maximum page lengths have been revised since the 2020 competition and vary by the total amount requested from the CFI.

- Total CFI request  $\leq$ \$2 million → maximum **25 pages**
- Total CFI request  $>$ \$2 million and  $<$ \$10 million → maximum **30 pages**
- Total CFI request  $\geq$ \$10 million → maximum **35 pages**

It is your choice how many pages you allocate to addressing each criterion within the overall page limit.

Expert committees will evaluate proposals against the standard for each assessment criterion, whereas the Multidisciplinary Assessment Committee will rate the degree to which the proposal meets each competition objective. Proposals should clearly present the merits and excellence of the proposed project and provide sufficient information to enable reviewers to evaluate the proposal in accordance with **the six criteria and the three objectives** of the 2023 Innovation Fund. Each of the objectives and criteria is discussed in more detail below.

### OBJECTIVE 1: Enable internationally competitive research or technology development through the equitable participation of expert team members.

There are three assessment criteria under this objective:

- Research or Technology Development
- Team Expertise
- Team Composition

This objective emphasizes the global context of the research program (“internationally competitive”). In this section, provide sufficient detail about the context of your program and the expertise of your team to establish that the proposed project is exciting and world-leading. Describe the ways in which the team demonstrates an intentional and ongoing commitment to the principles of equity, diversity, and inclusion (EDI).

### Research or Technology Development

**Criterion standard:** *The research or technology development program(s) are innovative, feasible, and internationally competitive.*

This section allows you to describe the proposed research or technology development program at length and to get the reader excited about its potential. It is important to have a well-organized discussion. A running theme of the application should be that the new infrastructure is absolutely essential for conducting the proposed research or technology development and will lead to international competitiveness.

On average, Research or Technology Development was the lowest-scoring criterion among U of T applications to the 2020 IF competition; fewer than half of all applications received a score of “Satisfies the criterion” or “Satisfies and significantly exceeds the criterion” at the Expert Review stage.

The following structure is one way to organize this section:

## Introduction

*Set the stage:*

- Start by providing a list of major infrastructure items before providing information about the research or technology development program. Giving the reviewers a clear overview of the infrastructure up front will make it easier for them both to follow the proposal and to see the connection between the requested items and the research activities.
- Outline the overall vision of the research or technology development program. What is the problem you are seeking to address? What are you proposing to do? And why is it necessary to address it now? Convince reviewers of the significance of the issue and of the possibility of finding solutions through your proposed project.
- For core facilities, consider including a high-level description of the types of projects the infrastructure will enable. You can then describe in the project in more detail later in the proposal. (For a definition of “core facilities,” see page 18 of the [Call for Proposals](#).)

*Objectives:*

- Describe the short- and long-term objectives of the research or technology development program.
- Outline how the requested infrastructure will play in realizing these objectives and how it will enable transformative research.

*Innovativeness:* Use phrases such as the following:

- “[X] will be the world’s premier centre for the research and development of . . .”
- “The work will lead to breakthroughs in [Y] by . . .”
- “The [centre/lab] will bring together the key strengths of . . .”

## Proposed Research: Feasibility

- Discuss the current state of knowledge and the pressing questions the proposed research or technology development is intended to address. Be sure to include key references (note that references are included within the maximum number of pages).
- Discuss the present research opportunity and how the proposed program will capitalize upon it.
- Describe the **specific and detailed** research or technology development program, **strategies**, and **key activities**, including methodological approaches and procedures for data collection and analysis. Justify the selected approaches/methodology.
- Address any anticipated challenges as well as the strategies for meeting such challenges.
- Clearly tie the research activities to the requested infrastructure—be sure to discuss how the requested infrastructure will be used.
- Set realistic timelines for research activities and outcomes. If commercialization is a part of the technology development program, establish a clear commercialization path and ensure that the timeline is credible.
- Describe the ways in which this research or technology development program is well rounded and/or takes a multi-faceted approach.
- If the project brings together interdisciplinary researchers, explain why an interdisciplinary approach is appropriate and valuable.

### **Proposed Research: Innovativeness**

- Discuss how the proposed program of research is innovative. This argument should be convincing both to the members of the expert review panel, with specific knowledge of your field, and to the multidisciplinary committee, composed of non-specialists.
- Demonstrate the high potential for breakthroughs in the field deriving from your research.

### **Proposed Research: International Competitiveness**

- Compare this work to comparable programs nationally and/or internationally, and discuss what distinguishes the proposed project from these others, emphasizing what makes yours new and cutting-edge. (E.g., “We are currently the only team in the world investigating [Y],” or “Although research in the field of [X] has been done before, this would be the first time that...”) Make a case for the uniqueness and the international competitiveness of the proposed research or technology development. Include references.
- Describe how the requested infrastructure and the proposed project will position Canada as a global leader in this field.

### **Timeliness and Impact**

- Address the timeliness of the proposed program (why undertake this research or technology development now?) by showing how the infrastructure is essential to exploit new or expanded opportunities.
- Demonstrate the potential impact of this work for Canadian society as a whole. (Are there any applied uses for the proposed research or technology development? Is Canada lacking knowledge or technology in this area?)

### **Common Weaknesses Identified by Reviewers**

- The description of research methods lacked specificity/detail and did not address innovativeness, making it difficult for the committee to assess the feasibility or the potential for breakthroughs.
- The research program is actually a series of smaller projects with no coherent objectives and a low degree of synergy among the different aims or themes.
- The program is too broad/spans too many areas to be feasible.
- The proposal required more detail on the current state of the field and the international research context.
- The proposal did not clearly outline the motivation, key questions, objectives, and hypotheses.
- The committee questioned the feasibility of the proposed research design and research plans.
- The proposal did not address potential research challenges and did not include a contingency plan.
- Plans for scaling up the proposal (where appropriate) were not described sufficiently.

## **Team Expertise**

**Criterion standard:** *The team comprises the breadth of experience and expertise necessary to conduct the proposed research program(s).*

In this section, persuade reviewers that your diverse team has all of the necessary expertise for the various elements of the proposed research program and the requested infrastructure. Integration is a key element of the CFI IF program, and the team should be well integrated; ensure that you discuss your track record working as a team and how you will collaborate with all of the partners.

### **Breadth of Experience and Expertise for the Proposed Program**

- Focus on the skills and accomplishments that you and your teammates bring to **this specific research project** that are essential to its success. Explain why you and your teammates are **optimal users** of the infrastructure. Avoid including CVs of people who will not use the infrastructure.
- Describe the expertise that is required to carry out the project, and explicitly link team members' areas of expertise to specific research activities. Consider providing a matrix/figure matching each team member's expertise with the proposed research program and activities. Another option is to provide a paragraph for each team member, outlining their expertise and accomplishments.
- Describe the team members' expertise and experience through both traditional and non-traditional outputs. (For a definition, see page 18 of [the Call for Proposals](#)).
- Discuss the team's previous experience using the requested equipment.
- Describe team members' experience working in research networks, managing large projects, and working with industry.
- Describe team members' experience in knowledge mobilization, technology transfer, and commercialization.
- Discuss both current and recent collaborations among the team members, and describe successful projects completed as a team. State how this proposed program of research will build on prior/existing collaborations and will enhance synergy among team members.
- Briefly outline any other relevant collaborations/partnerships. Be specific and name collaborators/partners within and outside the University (other researchers, industry, public sector networks, etc.) and describe the degrees of collaboration (informal exchanges, co-authorship, formal signed agreements, etc.).
- Collaborations must add real strength—quality, not quantity. Explain how all collaborations will contribute to the success of the proposed research or technology development program.
- Include a plan to maintain cohesion with the group (e.g., teleconference calls, in-person progress meetings, communications tools), and describe how the project director will work closely with other team members, partners, and collaborators.

### Common Weaknesses Identified by Reviewers

- The team needed additional expertise for a particular research objective, or there was mismatch between team expertise and proposed research.
- The synergy of team members and across research topics or themes was not well described.
- The proposal required more detail on the role of each group member and the involvement of end-users and partners.
- The proposed research program would be stronger with additional research collaborators and/or more collaboration with end-users and the private sector.
- The team's CVs were not up to date, leading reviewers to question the level of engagement and whether the team had sufficient expertise or funding to conduct the research.

### Team Composition

**Criterion standard:** *Principles of equity and diversity were considered in the team composition, including in its leadership. There is a commitment to create an inclusive environment where all team members are fully integrated and supported in the research team.*

- Describe **systemic barriers** that exist in the context of your research program or discipline(s). Systemic barriers are defined as policies or practices that result in individuals from under-represented groups having unequal access to, or being excluded from, participation or benefits.

- Keep in mind that systemic barriers can be unintentional or seemingly “invisible,” but they still have impacts that reproduce inequities.
- Some examples of systemic barriers include the following:
  - Unconscious biases in recruitment and hiring
  - Biases in peer review, publishing, and citations
  - Narrow definitions of excellence that undervalue some methods, venues, or contributions to the field
  - Inhospitable or unwelcoming research environments
  - Barriers around accessibility in research spaces and events
  - Inequitable service and mentorship burdens
  - A lack of mentors or role models for under-represented groups
  - Inequitable distribution of opportunities and resources
- For more information on systemic barriers, please see the [“Further Reading”](#) page on our EDI in Research and Innovation website.
- Next, describe **specific actions and steps** that you have implemented and will implement going forward to address these barriers. Tie these actions to the barriers described above—make the connection clear for the reviewers.
- You must describe **at least one concrete practice** that demonstrates how equity and diversity were intentionally considered in team composition (e.g., how the process of building the team was deliberately inclusive). For example, you could discuss the following:
  - How inclusive definitions of excellence were used in assembling the team (e.g., excellence in mentoring, outreach, and service; recognition the value of diverse methodologies and research impacts; consideration of leaves or non-linear career paths).
  - How the team took into account both traditional and non-traditional outputs when considering team members’ research expertise. For a description of both types of outputs, please see page 18 of the [Call for Proposals](#).
  - Any outreach to or engagement with prospective team members, noting how these efforts were attentive to diversity.
  - How EDI has been addressed in the team’s governance or decision-making structure.
  - Various team members’ demonstrated experience or competency in equity, diversity, and inclusion. At the same time, be sure to emphasize that **all** team members will be responsible for fostering an equitable, diverse, and inclusive research environment.
- You must also describe **at least one concrete practice** that you will adopt to support the ongoing inclusion of underrepresented groups in the research team, as well as how you will implement the practice(s) given the challenges or systemic barriers you have described. For example, you could discuss the following:
  - How you will use equitable processes to recruit HQP, including open postings; consistent use of pre-determined selection criteria; fair consideration of academic interruptions; and the completion of unconscious bias education by the selection committee.
  - How the team’s commitment to EDI will be an asset in mentoring and providing role models to emerging scholars and trainees.
  - How junior team members and/or trainees will have equitable access to mentorship and networking opportunities, ensuring that emerging scholars from underrepresented groups will have opportunities for academic and career advancement.
  - How the team will ensure that mentorship work is equitably distributed.
  - How the team will adopt proactive practices to promote inclusion, such as modelling inclusive behaviours; developing and implementing a code of conduct or team statement

around EDI; regularly discussing EDI research; creating flexibility and accommodation in scheduling; organization accessible and inclusive events; and sharing EDI resources and supports.

- Reviewers will be expecting to see descriptions of specific actions and their implementation. Avoid general or high-level statements about EDI and move directly into the discussion of the particular measures.
- While the Call for Proposals suggests that you review institutional policies and action plans for EDI, it is not sufficient to simply list or quote these policies as evidence of your commitment to EDI. Instead, say **how** your team will make use of specific elements or practices, discussing concrete actions.
- **Do not** include demographic information about team members, such as their gender identities, racial identities, sexual orientations, disability status, or other identities. Remember that EDI is not a counting exercise—instead, describe the steps the team has taken to engage members of under-represented groups, address systemic barriers, and advance EDI.
- For additional resources and examples of promising practices, please consult the VPRI handbook on [Addressing EDI in Your Research Funding Application](#), as well as [other resources available on the EDI in Research and Innovation website](#).

## **OBJECTIVE 2: Enhance and optimize the capacity of institutions and research communities to conduct the proposed research or technology development program(s) over the useful life of the infrastructure.**

There are two assessment criteria under this objective:

- Infrastructure
- Sustainability

This section should convince reviewers that the requested infrastructure is an excellent investment for the success of the research program and that it will be used and maintained over its full lifespan. Emphasize how the infrastructure is **essential** for the proposed program; how it enhances the current research ecosystem of people and infrastructure; and how it will be effectively operated and managed.

### **Infrastructure**

**Criterion standard:** *The requested infrastructure is necessary and appropriate to conduct the proposed program(s) and optimally enhances existing capacity.*

Provide a detailed justification for each item of the requested infrastructure to make the case that it is *essential* for the proposed research or technology development. Please note that in previous CFI-IF rounds, some applications received partial funding when individual budget items were considered insufficiently justified. Ensure that all requests are presented as essential. The following structure is one way to present the information.

#### **Overview**

- Open this section with a short overview of your overall infrastructure requirements (including items supported from other sources) to provide context. This is a good opportunity, if appropriate, to discuss the anticipated location of relevant items (if specific to each item, this can also be discussed in the description of the individual items).



### Description of the Infrastructure

- Group the items together by lab/facility, category, or suite, and clearly label each item using the item numbers found in the *Cost of Individual Items* table in the Finance Module. Present a clear justification for each item (or group of items) by including the following:
  - What it is and what it does
  - How it will be used and why it is needed in the context of the proposed research program
  - Why it is the best option for this program: which characteristics are essential and/or not available from competing suppliers
- As you describe the infrastructure, refer to the relevant research or technology development activities described in the “Research or Technology Development” section.
- Consider providing a matrix or figure matching the requested items with the proposed research activities.
- Demonstrate that the requested infrastructure will position the team to achieve scientific breakthroughs. Explain how the infrastructure will allow researchers to be internationally competitive.
- Make a solid case for *appropriateness* of the requested infrastructure. Demonstrate that the best tool for the task has been selected and that the equipment is ideal for the research or technology development described. In cases where you have a choice of makes or models, explain why you have selected these particular options.
- If an item is an integrated system with a number of components (i.e., one for which the vendor supplies a single quote for the entire working assemblage), describe and justify the system in terms of both the necessity of each of the components for effective functioning and the necessity of the system as a whole.
- Specify the location for each major part of the infrastructure (especially for multi-site applications). For multi-site applications, explain how different facilities/laboratories will be integrated and how communication between them will be maintained.
- Explain how the requested infrastructure will be integrated into existing facilities and how it will augment the existing capabilities of the team and the institution. If the equipment will be located offsite, provide a clear rationale.
- In cases in which the applicant(s) has/have previously received CFI funding, describe the value that will be added by a further award.
- You may name a specific equipment vendor and equipment model, but the CFI review will treat it as indicative of the research functionality required by the research. CFI will expect the eventual purchase to result from a competitive tendering process – and that might not be the vendor cited in the proposal.

**Note:** For construction or renovation, details must be provided in a separate document as part of the [Finance Module](#). Provide floor plans and a high-level breakdown of renovation costs. Include clear, realistic timelines and demonstrate that pre-planning is well underway.

### Availability of Similar Infrastructure

- Explain why your infrastructure needs cannot be met elsewhere.
- Make the case for the uniqueness of the infrastructure or the establishment of a unique research or technology development capability at U of T, within the region (southern Ontario/GTA), or in Canada.
- If the infrastructure is not unique within the University or in southern Ontario, make a persuasive case as to why existing infrastructure cannot be used. Briefly describe similar infrastructure available

locally and describe why it is not accessible or appropriate/adequate for the proposed research or technology development (for example, if it is already at full capacity or cannot be integrated with other equipment in your lab or site).

- Describe how the infrastructure will increase institutional capacity and enhance global competitiveness. Describe how the requested items will integrate with the existing infrastructure capacity at U of T and at partner institution(s).
- Indicate if the requested equipment will complement other infrastructure available locally and how it will fill a gap in existing facilities.
- If proposals are going forward in similar areas at U of T, demonstrate that the other proposals do not overlap with yours.

### **Common Weaknesses Identified by Reviewers**

- The requested infrastructure/personnel were not well justified and not sufficiently connected to the Research and Technology Development program.
- The requested items were not appropriate to the proposed research program.
- The proposal required more detail regarding the need for the specific features/capabilities of the infrastructure as well as how the requested items will be used and will enable innovative research.
- The proposal did not address the duplication of existing infrastructure, fully leverage existing equipment, or describe the integration of requested infrastructure with complementary facilities at U of T.
- Some potential difficulties and technical demands of the infrastructure were overlooked and not addressed.
- Safety measures were not adequately described.
- The proposal did not mention the research and/or technical staff required to support the requested infrastructure.
- The infrastructure costs were exaggerated.

## **Sustainability**

**Criterion standard:** *The infrastructure will be optimally used and maintained over its useful life through tangible commitments.*

Provide details about your management plan, governance structure (if applicable), and operating and maintenance (O&M) costs.

### **Optimal Use**

- Outline roles and responsibilities for implementation (e.g., initial planning, design, renovations, installation) and operations (e.g., guidelines for user fees, access, scheduling, training).
- Demonstrate that the infrastructure will be fully used through access by internal and external users, by diverse collaborative research, and/or by strong partnerships.
- Describe the basic operations associated with this infrastructure. For example, explain the implementation plan, the usage policy, the day-to-day oversight and operation of equipment, the required training, the need for experimental assistance, etc.
- Explain how the infrastructure will enable research across several disciplines or will create research or technology development opportunities outside of the original research program.
- Provide an access plan that describes how the requested infrastructure will be made accessible to other Canadian researchers. Be careful to specify that non-collaborators will have access only when the facility is not in use by the proposal team.

### Management Plan

- This section should describe how the infrastructure will be operated and maintained **over its useful life**.
- Identify the project director and outline this individual's responsibilities.
- Describe the responsibilities of other members of the management model (e.g., associate directors, project manager, lab manager, representative for team members).
- If applicable, mention the professional management structure already in place in your centre/facility, including business managers and staff who have experience ordering equipment, coordinating installation, arranging work orders, etc. Describe how this staff will work with the director or associate directors.
- Highlight team members' experience managing large-scale projects and infrastructure.
- If the project will generate a significant amount of data, provide a data management plan. Describe how you store and analyze data, how you will share data, and how you will preserve data after the project has ended. For more information on data management plans, see [this resource from U of T Libraries](#).

### Governance Structure

- For larger and more complex projects, describe the proposed governance structure for the requested infrastructure.
- Indicate who will be included on the different decision-making bodies.
- Include a diagram or figure, if appropriate.

### O&M Needs and Costs

- Include the expected lifespan of the infrastructure.
- Provide an annual budget for the costs of supplies, maintenance, personnel, a contingency fund, etc. Include a breakdown of costs or a rationale for these estimates.
- Outline the basic service needs of the infrastructure equipment and list any necessary supplies.
- Describe the plans for safety and any necessary permits and safety training.
- List the staff who will be performing or overseeing the operations and maintenance (e.g., lab manager, lab technician, research assistants) and describe their roles and responsibilities. Include their anticipated salaries.
- Describe who will be performing general equipment repair and/or technical support.
- Include information on warranties or service contracts and describe how repairs will be funded after a warranty ends. Mention if service contracts are transferable if the equipment is upgraded.
- Outline the process for determining infrastructure upgrades (e.g., who will make this decision, when they will meet).
- Describe the location where the infrastructure will be housed and, if applicable, describe how the equipment will be integrated into the existing facility. Mention security features already in place.
- Describe the needed security systems and provide their estimated costs.
- If applicable, include a timeline for the development of prototypes and the deployment of newly built infrastructure.

### Revenues

- Describe the sources of support for operations and maintenance: discuss both IOF funding and long-term sustainability through other sources. Note CFI expects that the IOF awarded will not normally be sufficient to cover operating and maintenance costs, and expects that additional funding will be required.

- Describe plans for cost-recovery through user fees.
  - If possible, include the expected numbers of users and the anticipated revenues.
  - Note if the user fees will generate a surplus, and describe how this surplus will be used after IOF funding ends.
  - Mention team members who have experience managing user access and fees.
- Discuss how additional operating and maintenance costs will be covered by operating grants or external grants. Include the total estimated value of these grants and/or describe researchers' track records in securing such funding.
- Describe institutional commitments for start-up funds, maintenance of space, technical personnel salaries, service contracts, upgrades, or other costs.
- Discuss funding that will be secured through support from industry partners or revenues that will come from licensing agreements.

#### **Justification for Additional O&M Contribution**

- If requesting additional O&M contribution (*available only to multi-institutional applications with three or more CFI-eligible collaborating institutions*), describe the specific additional costs and why they are essential.

**Note:** Examples of the Sustainability section, including sample text for operation and maintenance needs, sources of support, management structure, and governance structure, are available upon request from the Research Services Office (contact Helena Medeiros, [helena.medeiros@utoronto.ca](mailto:helena.medeiros@utoronto.ca)).

#### **Common Weaknesses Identified by Reviewers**

- The management plan lacked detail (e.g., management of priority and access to infrastructure, plans for sharing equipment with collaborators, the relationship between lab management and the higher-level management committee).
- The maintenance and repair budget was too low.
- The proposed user fees were not appropriate (e.g., too high, too low, flat fees for equipment with diverse costs).
- The sustainability plan relied in part on user fees, but there were few details about other users, or the projected number of users was overly ambitious.
- Plans for long-term sustainability were not clearly described.
- The infrastructure should be integrated into existing facilities to make use of already available administrative and technical supports.
- It was not clear how infrastructure would be maintained and optimally used across multiple sites.
- The governance plan was not appropriate for the project/team size or number of institutions.
- Because the research program was not coherent/unified, effective collaboration, management, and governance would be challenging.
- Success metrics and plans for long-term sustainability were not clearly described.
- The proposal lacked a convincing explanation of how the project will be scaled up (where appropriate).

### OBJECTIVE 3: Lead to social, health, environmental and/or economic benefits for Canadians.

There is one criterion under this objective:

- Benefits

Discussion of the benefits should include knowledge mobilization, training of highly qualified personnel, and socioeconomic, health, or environmental benefits. The pathways from the research (Objective 1), the people (Objectives 1 and 2), and the infrastructure (Objective 2) to the benefits should be detailed and specific. The benefits must be convincing to reviewers: they should be significant but seem plausible (ideally supported by evidence), and they should clearly result from the proposed program, based on the team's experience and expertise.

#### Benefits:

**Criterion standard:** *The team and its partners have a well-defined plan to transfer the results of the research or technology development program(s). The results are likely to lead to social, health, environmental, health, or economic benefits for Canadians.*

#### Pathways for Knowledge Transfer

- Describe the plans for the transfer of your results. The plan should seem feasible to reviewers and should include details about the relevant timeframes. There should be clear and convincing links between the proposed program, team, and pathways for transfer or knowledge mobilization.
- Identify end-users, including organizations or companies with which the applicants have already worked. Think outside the university and academia.
- Use the boilerplate language below (provided by the [Innovation and Partnerships Office](#)) to describe commercialization plans and use the checklist to describe the anticipated impact.
- Discuss team members' previous experience with similar strategies for knowledge transfer. Highlight, as appropriate, the team's proven commercialization record and discuss the applicants' experience establishing companies, filing patents, and licensing technologies.
- Provide a R&D timeline that outlines major activities and milestones.

#### Benefits

- Be concrete and show how the proposed research or technology development program, enabled by the requested infrastructure, will bring about benefits. It is fine to begin with background information about the field, but the description must also address the impact of the new work that will be made possible by the infrastructure.
- The benefits should be concrete and feasible—avoid overstatements or generalizations. For example, avoid broad statements such as “Our research will provide health benefits to all Canadians.” Benefits are more convincing if they are specific to your program. State instead, for example, “Partners A and B have had input into our research plans. This research will produce output X by [a specific time]; this research output will be used by A and B to produce benefits Y and Z for Canadian society.”
- Benefits are not only economic and may also include quality of life, social, health, and environmental benefits. Economic impact can be wealth generation or cost savings.
- When discussing economic impact, use plausible numbers rather than making general statements.
  - Consult the [Statistics Canada website](#) or search online for “economic benefit [your research area].” This search may uncover studies—even in other countries—that could be cited.

- Provide figures for the value of particular industries or sectors of the economy. If possible, list the numbers of people employed and the contribution of this sector to Canada's GDP.
- Where available, include figures for projected growth of this sector. State how this program of research will allow Canada to capture part of this expanding market.
- State how the IP will attract licensing agreements, create Canadian-based spin-off companies, or create jobs for Canadian highly qualified personnel.
- If the project has a low potential for commercialization or industrial spin-off, emphasize how this research will enhance or restore Canada's position as a leader in a particular scientific field and how it will allow Canada to participate in major international scientific initiatives or global consortia.

### **Plan for Highly Qualified Personnel (HQP)**

- Explain how the new infrastructure is essential for training your HQP. Describe unique elements of the training environment. State how this research or technology development program will create excellent opportunities to train HQP in state-of-the-art techniques.
- If possible, give estimated numbers of HQP expected to be trained.
- Describe the benefits for the HQP themselves. Describe the new knowledge and skills they will acquire and how these skills will prepare them for academic and non-academic careers. Include evidence of shortages of skilled personnel in relevant sectors.
- Demonstrate your ability to train HQP in this field. Provide examples of companies that have hired your graduates in recent years and/or examples of start-ups created by graduates/trainees. If applicable, describe how industrial partnerships will create employment pathways for HQP.

### **Commercialization**

#### ***Boilerplate Language***

The University of Toronto (U of T) works with numerous governmental and non-governmental organizations, community groups, non-profit organizations, and over 250 companies at any given time, ranging from small and medium-sized enterprises to multi-national corporations. The Innovations and Partnerships Office (IPO), the central technology transfer office at U of T, helps build successful partnerships between industry, business, government, and the U of T research community. It manages U of T's intellectual property, turning ideas and innovations into products, services, companies, and jobs.

Many of the industry-sponsored research agreements executed by IPO result in licenses to the sponsoring company. IPO executes about 40 licences per year and had 270 active commercialization projects in 2020; the majority of these licenses are with Canadian companies, demonstrating that U of T technologies are increasingly being used by Canadian companies to grow and compete in global markets.

U of T is also a global powerhouse in translating research results into patents, licenses, companies, and jobs. The University averages about 190 invention disclosures per year. As of the most recent reporting year, U of T has filed more than 870 patents between 2010 and 2020, filed 75 Priority Patents in 2020. In the last 10 years, it has successfully created over 500 companies, which have collectively raised over \$1.5 billion in investment. U of T is a global leader in transforming research for entrepreneurship and prosperity and is one of the leading North American universities for company creation. U of T Entrepreneurship (UTE) is a vibrant entrepreneurial community with numerous initiatives and support programs that create, encourage, foster, and grow new companies.

#### ***Economic and Social Impacts of***

***Commercialization Checklist (discuss all that apply):***

- Create jobs (HQPs)
- Create a start-up company
- Build new partnerships and collaborations

- Brand Canada/Ontario in a specific area
- Improve Canadians' quality of life
- Affect the economy and/or society
- Have a positive effect on human health

### Common Weaknesses Identified by Reviewers

- The proposal required clearer, more detailed pathways to knowledge translation and/or commercialization.
- The anticipated benefits appeared speculative.
- The knowledge mobilization potential was low and the knowledge transfer or commercialization plan was not convincing.
- The timeline for realization of the benefits was not realistic.
- The proposed HQP training was weak (e.g., too few HQP, too many HQP, vague or underdeveloped training plans).

## FINANCE MODULE

### Cost of Individual Items

Below is an example of requested infrastructure for a hypothetical application:

Item #	Type	Item description	Number of items	Eligible costs			Date acquired (YYYY/MM) or to be acquired (YYYY)
				Cash \$	In-kind \$	Total \$	
1	13	Microscopes	2	95,000	25,000	120,000	2023
2	13	Molecular Biology Suite	1	55,000	15,000	70,000	2023
3	20	Lab Renovation	1	60,000		60,000	2022
<b>Total eligible costs</b>				<b>\$210,000</b>	<b>\$40,000</b>	<b>\$250,000</b>	

- Requested items must be eligible and used for research/technology development (review Section 4.6 of the [Policy and Program Guide](#) for examples of eligible and non-eligible costs).
- It is recommended to bundle items into functional groups, especially if the cost of each item is small and together these items serve a similar purpose (e.g., various molecular biology lab equipment can be grouped into one line called Molecular Biology Suite). Likewise, items that are integrated or physically connected and for which there are multiple components should be grouped into a "system."
- "Number of items": Where there is a small number of high-cost items in a group, items should be separately counted (e.g., 2 microscopes = 2 items in the Microscopes group; 2 desktops + 1 server = 3 items in the Work Stations group). A group with many low-cost items can be considered as a unit (e.g., 1 Molecular Biology Suite may include a number of basic lab equipment). An integrated system should be listed as a unit, rather than the number of components that comprise the system.
- At the proposal stage, infrastructure costs are intended for the purpose of establishing a realistic overall budget. Acquiring estimates does not constitute a commitment to any particular vendor.
- The cash portion of an item must include taxes (3.41% HST), shipping, installation, and brokerage fees where applicable. Do not include these costs in the in-kind contributions.
- Infrastructure that will be used for dual purposes (e.g., research and clinical use) should have costs pro-rated for its research/technology development use only.

- When estimating costs, factor in any possible fluctuations in foreign exchange rates and prices that might adversely affect the purchasing power of the requested funding. CFI and ORF will not increase their contributions after the project is awarded.
- If you plan to purchase service contracts or extended warranties beyond the standard warranty, they should either be included in the cost of the infrastructure or listed as a separate line item. Note that once the project is awarded, warranties cannot be removed from the budget.
- As of the 2020 IF round, CFI now accepts service contracts and warranties as eligible costs for existing equipment, where justified.
- The CFI expects advanced research computing (ARC) infrastructure to be housed and managed by The new [Digital Research Alliance](#) (formerly Compute Canada). If you have infrastructure that falls within this category, it is strongly recommended that you discuss and/or develop your proposal in collaboration with the Alliance prior to submitting the application to the CFI (review Section 4.6.4 of the [Policy and Program Guide](#) for examples of systems or resources that are considered ARC). For questions about the eligibility of ARC, please contact [2023IF@innovation.ca](mailto:2023IF@innovation.ca).
- Construction or renovation costs are eligible if the project space is essential for the housing and use of the requested infrastructure, or to conduct research (review Section 4.6.2 of the [Policy and Program Guide](#) for examples of eligible and non-eligible costs related to construction and renovation). Specify the full cost to renovate the space even if CFI funds are not being requested to cover the entire cost of the renovation. Renovation costs, if not included at the applications stage, will not be accepted as an eligible cost after the project is awarded.
- If the project space is part of a larger renovation initiative, ensure that the estimated cost to renovate the space is determined separately from the costs for the larger undertaking. An appropriate cost-allocation method should be developed and supporting documents kept on file.
- *“Date acquired or to be acquired”*: If the purchase of an item occurred or will occur over several periods, indicate the first order date. As a result of the length of time for the approval process by both CFI and ORF, availability of funds is not expected until approximately 18 months after the CFI application deadline. Plan the timing of purchases accordingly, especially if renovation of project space is necessary for the housing of infrastructure.
- Successful applicants must adhere to the University’s procurement policy (see U of T’s procurement website at [procurement.utoronto.ca](http://procurement.utoronto.ca)). It is useful to be familiar with the policy and its procedures prior to receiving an award.

#### **In-kind contributions**

- Items involving vendor deep discounts or in-kind contributions must be reported at fair market value. The supplier should detail its pricing to specify clearly on the quote and the invoice the list price, the normal discount and/or educational discount, the CFI discount, and the net selling price (review Section 6.5 of the [Policy and Program Guide](#) for definitions and documentation requirements). If reference to a “CFI discount” is not explicitly stated on the quote and invoice, the discount will be disallowed.

- For example:

List price	\$500
Normal discount	(\$20)
Educational discount	(\$80)
<b>Fair market value (total eligible cost)</b>	<b>\$400</b>
<b>CFI discount (in-kind)</b>	<b>(\$100)</b>
<b>Net selling price (cash)</b>	<b>\$300</b>



- Vendors that do not offer a normal and/or educational discount should include a statement on the quote and invoice to confirm that any discount applied is specifically offered as a CFI discount only.
- In-kind contributions in excess of \$500,000 require a higher level of due diligence to assess the fair market value of the item, which could include a market comparison, a comparison with previous purchases by U of T or other institutions, or an appraisal.

### Construction or Renovation Plans

- Ensure that the appropriate faculty/department space and planning office, Capital Projects, or building management have been consulted so that realistic costs and timelines are established at the outset.
- At the time of the CFI application, renovation or construction plans must be developed well beyond the conceptual stage. The CFI expects renovation or construction to start within 18 months of the notice of award.
- Ensure that timelines are clear and feasible. If timelines do not seem realistic, reviewers may question how delays will affect the early stages of the research (and thus the feasibility of the program as a whole).

### Contributions from Eligible Partners

Partner name ^	Partner type	Cash	In-kind	Total	Secured or expected	Delete
Ontario Research Fund	Provincial governments (departments or agencies)	\$100,000	\$0	\$100,000	Expected	✕
University of Toronto	Institutions, trust funds or foundations	\$40,000	\$0	\$40,000	Secured	✕
Vendors/various	Corporations/firms	\$0	\$40,000	\$40,000	Expected	✕



**i** If applicable, outline partner contributions that are expected but not yet secured, and indicate plans for securing these funds.

6%

An application for matching funding will be made to the Ontario Research Fund and [include the names of other partners]. Vendor deep discounts will be realized at the point of purchase.

\* Required field 3000 characters



### Part One

- List all eligible partners (ORF, departmental start-up, vendor deep discounts, etc.) and the type of contribution (i.e., cash or in-kind), but do not include the amount requested from the CFI. The CFI contribution will be calculated automatically from the cash amounts provided for other partners.
- Note that Tri-Council grants and programs cannot be used to leverage CFI funds (review Section 4.8 of the CFI's [Policy and Program Guide](#) for a list of eligible and ineligible partners).
- The ORF contribution (Partner name: Ontario Research Fund) should equal the CFI contribution. An application submitted to the province, in which the CFI and ORF requested amounts are not equal, will be corrected by the province to the lower amount.

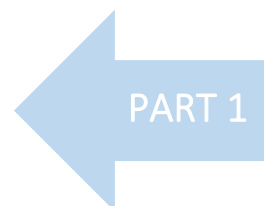
- Department start-up funds or faculty funds (Partner name: University of Toronto) that will be used as matching should be attributed as a “cash” contribution and “secured.”
- Applicants are encouraged to bundle all vendor deep discounts under a single line called “Various Vendors” and include the total amount under “in-kind.”
- Vendor deep discounts from external partners and cash expenditures already made by the department are only eligible if these were received no earlier than six months prior to the CFI application deadline.
- Select “expected” for partner contributions that have not been confirmed or received (e.g., ORF, vendor deep discounts).


### Part Two

- Use this section to provide information on partner contributions that are “expected.”
- Boilerplate Language: “An application for matching funding will be made to the Ontario Research Fund and [include the names of other partners]. Vendor deep discounts will be realized at the point of purchase.”

## Infrastructure Utilization

	Percentage
Research/technology development and associated training	100
Education, excluding research / technology development training (not eligible for CFI support)	
Administration	
Clinical or other service function	
Other (specify) <input type="text"/>	
50 characters	
<b>Total</b>	<b>100%</b>



-  Give a breakdown of the eligible costs included in each of the above categories.
- If the infrastructure is used for non-CFI-eligible purposes, explain how the percentage of utilization was determined in each category and how the budget was pro-rated.

2%

The requested infrastructure will be used exclusively for research and research training.



### Part One

- This section captures the use of the infrastructure for CFI-eligible and non-eligible purposes.
- If the items are intended entirely for research/technology development, enter 100% in this line.
- For infrastructure that will also be used for other purposes, the cost must be pro-rated appropriately, and a justification provided for the pro-rating.

### Part Two

- In this section, use the following boilerplate language, if appropriate: “The requested infrastructure will be used exclusively for research and research training.”

## SUGGESTED REVIEWERS

The list of suggested reviewers is pre-populated using the list provided in the Notice of Intent. You may identify additional reviewers at the application stage. CFI encourages applicants to suggest reviewers with the principles of equity, diversity and inclusion in mind (different career stages, diverse backgrounds, underrepresented groups). Suggested reviewers must not be in a conflict of interest. Reviewers are in a conflict of interest if they fall into one of the following categories:

- Are a relative or close friend, or have a personal relationship with the candidates
- Are in a position to gain or lose financially/materially from the funding of the proposal
- Have had long-standing scientific or personal differences with the candidates
- Are currently affiliated with the candidates' institutions, organizations, or companies, including research hospitals and research institutes
- Are closely professionally affiliated with the candidates, as a result of having in the last six years
  - Had frequent and regular interactions with the candidates in the course of their duties at their department, institution, organization, or company
  - Been a supervisor or a trainee of the candidates;
  - Collaborated, published, or shared funding with the candidates, or have plans to do so in the immediate future; or,
  - Been employed by the applicant institution
- Feel for any reason unable to provide an impartial review of the proposal

***Do not include reviewers who hold appointments at U of T or its affiliated hospitals and institutes.***

Canada-based reviewers are more likely to have a conflict of interest, so it is recommended that you propose reviewers based outside Canada, which has the added advantage of highlighting the international reach and impact of your research. The decision to use suggested reviewers rests with the CFI.

Last updated: 29 November 2021