UNIVERSITY OF **TORONTO**

OFFICE OF THE VICE–PRESIDENT,
RESEARCH AND INNOVATION

# TIPS: CFI – INNOVATION FUND
## 2020

## OVERVIEW

The Canada Foundation for Innovation's (CFI) Innovation Fund (IF) provides continued investments in infrastructure, across the full spectrum of research, from the most fundamental to applied through to technology development. The objectives of the program are to (1) enable global leadership by supporting world-class research or technology development; (2) enhance and optimize the capacity of institutions and research communities to conduct the proposed research or technology development program(s); and (3) lead to social, health, environmental and/or economic benefits for Canadians.

## 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 three competitions (2012, 2015, and 2017). 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 applies to all sections of the application—Research or Technology Development, Team, Research Capacity, Infrastructure, Sustainability, and Benefits. 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 relevant criteria are satisfied.

**A well-integrated project:** All of the elements of the project should be clearly linked to one another. This applies within objectives and criteria—research activities should relate clearly to research objectives, for example—but also between criteria: the team should relate to the research, and the benefits should flow clearly from the infrastructure and its use. The infrastructure should be integrated into prior CFI investments, existing infrastructure, and institutional research strategic objectives. Reviewers are looking for **cohesion across the proposal** and a sense that the proposal represents a unified program.

**An innovative research program:** In the 2020 competition, CFI has clarified that it is looking to support innovative research programs or technology development, not to necessarily invest in infrastructure that is itself innovative. The infrastructure should be essential and necessary; the proposed program should be innovative.
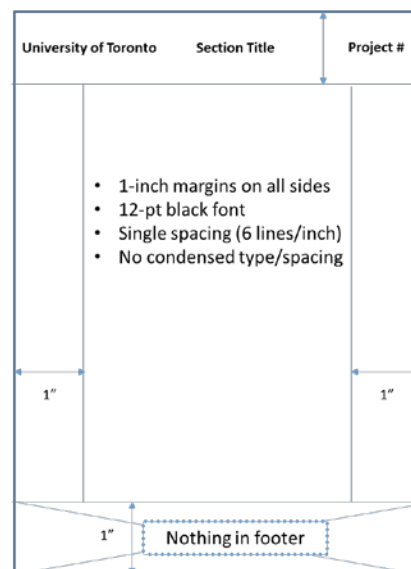
### FORMATTING & STYLE

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 are clearly labelled and are legible.

**In addition, 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 use single-line spacing (six lines per inch) with no condensed type or spacing.**
- Begin each criterion of the Assessment Criteria on a new page.
- The file size should not exceed **20 Mb**.



University of Toronto    Section Title    Project #

- 1-inch margins on all sides
- 12-pt black font
- Single spacing (6 lines/inch)
- No condensed type/spacing

1"    1"

1"    Nothing in footer

## PROJECT SUMMARY (maximum 3 pages)

The project summary provides a general description of the research or technology development activities and the requested infrastructure. The summary must concisely explain how the program meets all three competition objectives.

- 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

The maximum length depends on the funds requested from the CFI.
- If the total CFI request is **less than or equal to $2 million**, the Assessment Criteria attachment can be up to **30 pages**.
- If the total CFI request is **greater than $2 million**, the attachment can be up to **35 pages**.

The distribution of pages among the six criteria is at the applicant's discretion.

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 2020 Innovation Fund.

### Objective 1: Enable global leadership by supporting world-class research or technology development.

**Criteria**: Research or technology development; Team

This objective emphasizes the international context of the research program ("global leadership," "world-class research or technology development"). In this section, provide sufficient detail about the context and state-of-the-discipline of your program and the expertise and the diversity of your team to establish that it is exciting and innovative at an international level.

### Objective 2: Enhance and optimize the capacity of institutions and research communities to conduct the proposed research or technology development program(s).

**Criteria**: Research Capacity; Infrastructure; Sustainability

This section should convince reviewers that the requested infrastructure is an excellent investment for the research program, the institution, and the country. Emphasize how the infrastructure will fit in the current research ecosystem of people, infrastructure, investments, and the specific proposed program. In the 2017 competition, only about 12% of proposals received the highest category of assessment for this objective ("significantly exceeds the criterion standard").

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

**Criterion**: Benefits

Discussion of the benefits should include knowledge mobilization, training of highly qualified personnel, and socioeconomic 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); they should clearly result from the proposed program, based on the team's experience and expertise.

**Objective 1: Enable global leadership by supporting world-class research or technology development.**

> ### Research or technology development
> 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 global leadership. The following structure is one way to present your discussion:

**Introduction**

*Set the stage*: Open by outlining 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.

*Objectives and Infrastructure Requested*: Describe the short- and long-term objectives of the research or technology development program and the role the requested infrastructure will play in realizing these objectives. Discuss how this infrastructure will enable transformative research and how it is essential to build upon previous successes.

*Innovativeness*: Use phrases such as,
   o "[X] will be the world's premier centre for the research and development of . . ."
   o "The work will lead to breakthroughs in [Y] by . . ."
   o "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.
- 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 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 diverse researchers, explain why a multi-disciplinary approach is appropriate and valuable.

**Proposed Research: Innovativeness**
- Discuss how the proposed program 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: Internationally Competitiveness**
- Compare this work to comparable programs nationally and/or internationally, and discuss what distinguishes the proposed project from these other, 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.
- 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 detail and did not address innovativeness, making it difficult for the committee to assess the feasibility or the potential for breakthroughs.
- The research program was diverse and unfocused with no cohesive objectives and a low degree of synergy among the different projects or themes.
- 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.
- The proposal did not address potential research challenges and did not include a contingency plan.

**Objective 1: Enable global leadership by supporting world-class research or technology development.**

### Team
The diverse team comprises the breadth of expertise to conduct the proposed 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 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.
- One option is to provide a paragraph for each of the team members, outlining their expertise and accomplishments.
- Describe team members' high calibre and international standing, and link their areas of expertise to specific research activities.
- Discuss the team's previous experience using the requested equipment.
- Demonstrate that the team combines diverse expertise.
- 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) and describe how the director will work closely with other team members, partners, and collaborators.

**Diversity**
In the IF 2020 round, CFI has requested that proposals describe the equity, diversity, and inclusion principles considered in the composition of the team. These might include the breadth and diversity of expertise and skills that the team brings and the inclusion of researchers at different stages of their careers. CFI specifies that the information will not be used in the assessment of the research project, though committees may provide feedback on EDI-related activities. Discuss the points that are most relevant to your application, while ensuring that sufficient information about the assessed elements of the standard are provided.

- Indicate if the team includes expertise in Gender-Based Analysis Plus and/or if one of the team members will serve as a Sex and Gender Champion.

FOR INTERNAL USE BY UNIVERSITY OF TORONTO PERSONNEL ONLY
**RESEARCH SERVICES OFFICE,** 3<sup>rd</sup> Floor McMurrich Building, 12 Queen's Park Crescent, Toronto, ON, M5S 1S8, Canada.
See contact information on the website: research.utoronto.ca

- Describe how the process of building the team was deliberately inclusive and was attentive to diversity. Discuss how the team integrates a breadth of diverse perspectives and experiences.
- Describe how the team has engaged or will engage members of under-represented groups, but do not include demographic information about team members, including gender, race, sexuality, disability status, or other identities. Respect the privacy of all team members.
- Describe how the governance or decision-making bodies will be diverse in their membership.
- Explain how the team's diversity will be an asset in mentoring and providing role models to trainees.
- Describe particular team members' demonstrated experience or competency in equity, diversity, and inclusion, but be sure to emphasize that **all** team members will be responsible for fostering an equitable, diverse, and inclusive research environment, as is consistent with the CFI's mandate and values.
- Describe how junior team members and/or trainees will have equitable mentorship and networking opportunities, ensuring that emerging scholars from underrepresented groups will have opportunities for career advancement.
- Refer to relevant sections of the NSERC *Guide for Applicants: Considering Equity, Diversity and Inclusion in Your Application* or other EDI-focused resources.

### 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.

FOR INTERNAL USE BY UNIVERSITY OF TORONTO PERSONNEL ONLY

RESEARCH SERVICES OFFICE, 3rd Floor McMurrich Building, 12 Queen's Park Crescent, Toronto, ON, M5S 1S8, Canada. See contact information on the website: research.utoronto.ca

**Objective 2: Enhance and optimize the capacity of institutions and research communities to conduct the proposed research or technology development program(s).**

## Research capacity

The institution(s) and their partners have the necessary research capacity on which this proposal will build.

Frame the infrastructure request as an investment that will enhance existing institutional capacity. Describe the current research capacity at U of T and among partners—including investments in both infrastructure and personnel—on which the proposed program will build.

**Institutional Priority**
- Explain how the proposed project is a strategic research priority for the institution. Specify how it aligns with the relevant research theme(s) and area(s) of the University's Strategic Research Plan (SRP). Provide the themes and quote directly from the SRP.

**Investments in Relevant Area(s) of Research**
- Using quantitative information, describe key investments by U of T in your area(s) of research. For example, new buildings, renovations of laboratories, and the creation of administrative space. Describe recent focused hiring that has created a strong cluster in this field.
- Describe past CFI investments at U of T in this area of research or technology development and discuss CFI funding secured by members of the research team.
- Discuss the financial support for O&M of existing infrastructure, and provide a list of programs and/or private sector funders.

**Outcomes of Previous Investments**
- Describe key outputs resulting from the investments described above. List major research findings, publications, IP generated, technology transfer, companies formed, and other significant outcomes.
- List international and national collaborations and partnerships that have been built as a result of the existing infrastructure, including collaborations with other universities, research institutions, international consortia, and/or the private sector. State how previous investments have played a central role in establishing and maintaining collaborations that have led to the current proposal.
- Explain how these past investments have created social, economic, or environmental benefits for Canadians. Discuss the implications of these investments—and the resulting research—for job creation, public policy, health benefits, etc.

**Attraction and/or Retention of World-Class Researchers**
- Describe how previous investments in infrastructure have allowed the institution to attract and retain world-class talent. Describe faculty members who use the facilities (retention), the number of faculty members attracted to the institution by the facilities, and the total number of highly qualified personnel trained in these facilities, as well as their career paths.

### Weaknesses Identified by Reviewers

- The proposal did not demonstrate existing capacity in this research area or did not provide enough detail on investments and alignment with strategic priorities.
- The proposal required more information about how past institutional investments have led to results, knowledge transfer, or IP/innovative technologies.

FOR INTERNAL USE BY UNIVERSITY OF TORONTO PERSONNEL ONLY

**RESEARCH SERVICES OFFICE,** 3rd Floor McMurrich Building, 12 Queen's Park Crescent, Toronto, ON, M5S 1S8, Canada. See contact information on the website: research.utoronto.ca

**Objective 2: Enhance and optimize the capacity of institutions and research communities to conduct the proposed research or technology development program(s).**

## Infrastructure

The requested infrastructure is necessary and appropriate to conduct the proposed program(s).

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

**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.
- Demonstrate that the requested infrastructure will position the team to achieve scientific breakthroughs. Explain how the infrastructure will allow researchers to be globally 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 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 incorporated into existing facilities and how it will augment the existing capabilities of the team.
- In cases in which the applicant(s) has/have previously received a CFI award/CFI awards, describe the value that will be added by an additional award.

*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 improvements in the infrastructure are necessary to increase institutional capacity and to enhance global competiveness.
- 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.

### Weaknesses Identified by Reviewers

- The requested infrastructure/personnel was not well justified, was not sufficiently connected to the Research and Technology Development, or that was not deemed appropriate to the proposed research program.
- The proposal required more detail to describe 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.
- The infrastructure costs were too high.

**Objective 2: Enhance and optimize the capacity of institutions and research communities to conduct the proposed research or technology development program(s).**

## Sustainability
The infrastructure will be optimally used, operated and sustained over its useful life through tangible commitments.

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

**Management Plan**
- 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.

**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 your team.

**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.
- 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.

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

**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 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).

### 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).
- Plans for long-term sustainability were not clearly described.

**Objective 3: Leads to social, health, environmental and/or economic benefits for Canadians.**

## Benefits

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 and/or economic benefits for Canadians.

**Pathways for Knowledge Transfer**
- Describe the plans for the transfer of your results. The plan should seems 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 just economic, but 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 Statistics Canada's 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.
- 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 paths 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 35 licences per year and has held 285 active licenses; 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 170 invention disclosures per year. As of the most recent reporting year, U of T has filed more than 750 patents since 2010 and currently file US patents at a rate of 2-3 per month; in the last ten years, it has successfully created over 500 companies, which have collectively raised over $1 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

### 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 proposed HQP training was weak (e.g., too few HQP, too many HQP, vague 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 Cash $ | Eligible costs In-kind $ | Total $ | Date acquired (YYYY/MM) or to be acquired (YYYY) |
|--------|------|------------------|-----------------|-----------|---------|---------|------------------|
| 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 |
| | | **Total eligible costs** | | **$210,000** | **$40,000** | **$250,000** | |

- 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.
- The CFI expects high performance computing (HPC) infrastructure to be housed and managed by 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 Compute Canada 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 HPC). Compute Canada can be contacted through cfi-awards@computecanada.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.) 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) |
| | _____ |
| **Fair market value (total eligible cost)** | $400 |
| **CFI discount (in-kind)** | ($100) |
| | _____ |
| **Net selling price (cash)** | $300 |

- 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 | ✖ |

PART 1
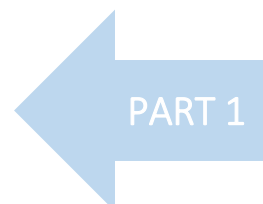
ℹ If applicable, outline partner contributions that are expected but not yet secured, and indicate plans for securing these funds.

⬛ 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.

PART 2

\* Required field                        3000 characters
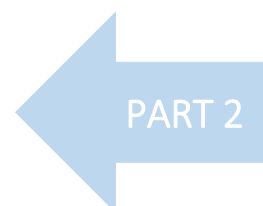
### Part One

- 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 non-eligible 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) | |
| 50 characters | |
| **Total** | **100%** |

PART 1

*i* 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.

PART 2

2%

The requested infrastructure will be used exclusively for research and research training.
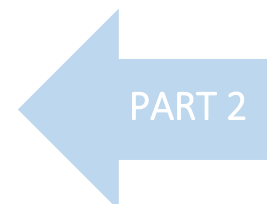
### Part One
- This section captures the use of the infrastructure for CFI-eligible and non-eligible purposes.
- If the items are intended entirely for research/technology development, enter 100% in this line.
- For infrastructure that will be used for other purposes, the eligible cost must be pro-rated appropriately.

### 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***. The decision to use suggested reviewers rests with the CFI.

Last updated: July 16, 2019 (AG)