University of Guelph Applicant's Guide
Canada Foundation for Innovation – Innovation Fund

This guide is designed to assist University of Guelph faculty in development of a competitive, compelling CFI IF Assessment Criteria. Please refer to the 2023 Innovation Fund Call for Proposals for full instructions and context.

Additional resources, including timeline and resources for budget development, can be found on the ORS CFI – Innovation Fund webpage

The Applicant's Guide is organized according to Assessment Criteria. It includes:

- CFI Objectives. The Special Multi-Disciplinary Assessment Committee (S-MAC) evaluates proposals against the program objectives.
- **CFI IF CRITERIA - REQUIRED HEADINGS** The Expert Reviewers and the Multidisciplinary Assessment Committee (MAC) evaluate proposals against these criteria
- CFI instructions
- CFI tips
- U of G suggestions for responding to criteria
- Common weaknesses. These reflect comments from MACs and SMACs

NEW Security considerations

As newly required by the CFI, the University of Guelph will "conduct a consistent and appropriate due diligence review of potential security risks for funded projects and put in place timely measures to appropriately mitigate those risks."

For more information, see the 2023 Innovation Fund Call for Proposals.

UNIVERSITY of GUELPH OFFICE of RESEARCH

CFI IF Assessment Criteria

Total CFI request ($)	Max. number of pages
≤ $2 million:	25 pages
>$2 million and <$10 million:	30 pages

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

1. **RESEARCH OR TECHNOLOGY DEVELOPMENT The research or technology development program(s) are innovative, feasible, and internationally competitive.**
   - Describe the proposed research or technology development program(s) that will be enabled by the requested infrastructure
   - Explain the methodologies to be employed, and discuss feasibility by identifying key challenges and how the team will overcome them
   - Describe the innovative aspects of the program(s) by positioning it within the current state of knowledge in the field, both in Canada and internationally (include references)..

CFI Tips:

- Consider providing a list of the major infrastructure items that are requested before providing details about the research program(s).
- For core facilities, consider providing a high-level description of the types of projects the infrastructure will enable, then describe in more detail a representative sample of the research projects to be conducted (See the CFI IF program guide for definition of "core facility")

U of G Suggestions:

1. Identify the major scientific and/or real-world challenge that your project targets. Why does it matter? How will your team respond to the challenge? Why is your **approach** unique and likely to succeed? **Highlight breakthrough potential**.
2. Organize the research description by theme and articulate clear and achievable research objectives. Articulate the organizational logic of your research program. (How are themes **integrated**? Why organize the program this way?) For each objective (or project) list examples of questions that you will answer.
3. Describe the methodology to demonstrate **feasibility**. Make reference to requested equipment and expertise of specific team members (core team and collaborators) wherever possible.

4. Describe how your project is **innovative**: For CFI, **"**Innovation is a process that begins with the creation of knowledge in research, and continues through its applications, for the benefit of Canadian society." So, refer in this section (to be elaborated in Benefits to Canada) to **specific research outcomes** that will lead to benefits.
5. Very clearly and explicitly explain how your project is **internationally competitive:** Demonstrate awareness of other universities/researchers who are engaged in similar research or in your research area nationally and internationally.

Common weaknesses identified by reviewers:

- A high degree of innovation is not exhibited for the proposed research.
- There are similar research initiatives worldwide; a unique approach is not exhibited.
- More expertise in the subject area is required.
- Lack of detail about the proposed research; reader is left with many questions.
- Details around sharing the data are not apparent.
- It is unclear how the methodology will be employed and how it would enhance the potential for technology breakthroughs.
- The explanation was not detailed and did not explain anticipated outcomes of the research activities.
- A thorough description of how integration of each research component would take place is not provided.

2. TEAM EXPERTISE The team comprises the breadth of expertise to conduct the proposed program(s).

- Describe the expertise required to conduct the proposed research program(s)
- Highlight the team members' experience and expertise through traditional and/or non-traditional research outputs. (See CFI program guide for definition of "traditional and non-traditional research outputs")

CFI Tips:

- **Consider providing a competency matrix matching the team members' expertise with the proposed research activities.**

U of G suggestions:

1. For examples of matrix, see National Research Council (2013). "Enhancing the Effectiveness of Team Science").

2. Provide an overview demonstrating that the team has the complementary expertise required to meet proposed program goals, highlighting prior track record of collaboration where possible. In this overview, summarize major recognitions, e.g. # are Canada Research Chairs (names); # are Fellows of the Royal Society of Canada (names) and/or identify 1-3 notable discoveries attributed to the team or a team member. Highlight track records of collaboration with industry partners or end-user sectors (provide 1-3 notable examples of success). Highlight training numbers (total # of HQP trained by team members) and/or provide 1-3 notable examples of successful trainee career trajectories.

3. List users beginning with project/theme leads. Try to keep it to 3-5 sentences /team member, organized in the same way each time. For example:

   Name. Title/Affiliation. Honorary Title. Description of research area as it relates to proposed program of research. Two-three most influential publications (with # citations) or other influential outputs. Technical expertise (if relevant—to demonstrate expertise with equipment list 2-3 publications resulting from use of equipment similar to that requested, or from use of facility key to the proposal). HQP Training record. Innovation/Impact track record (any policy impacts or applications of research or other demonstrable impacts of research uptake). Role (on proposed project; i.e. what will this person ***do*** on which theme/objective).

Common weaknesses identified by reviewers:

- Team members are not experts in all the subjects covered in the research proposal.
- There are very few co-published papers listed demonstrating past collaboration among the principal users.
- There is no indication of interdisciplinary collaboration.
- It is unclear how team members would be cohesively engaged in the development of infrastructure.
- The team could be strengthened through collaborations with other institutions.

3. **TEAM COMPOSITION: 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 the specific challenges or systemic barriers that exist in the context of your research program(s) that could prevent individuals from underrepresented groups from participating equitably within the team.
   - Describe at least one concrete practice that you put in place to overcome the challenges or systemic barriers you have described and which demonstrates that equity and diversity were intentionally considered in the team composition.
   - Describe at least one concrete practice that you will adopt to facilitate the ongoing inclusion of underrepresented groups in the research team, and how you will implement that best practice given the challenges or systemic barriers you have described.

CFI tips:

- Consult the Government of Canada's Best Practices in Equity, Diversity and Inclusion in Research guide for examples of how to integrate these principles into your research. We also recommend reviewing your institution's action plan and policies for equity, diversity and inclusion
- How an individual self-identifies in terms of belonging to one or more underrepresented groups is considered personal information. Do not in any way provide the personal information of team members (e.g., Dr. X identifies as a member of a visible minority; The team has X women, X men and X individuals who identify as persons with disabilities; etc.)

U of G Suggestions:

- If a GBA+ analysis[1] is relevant to your research program, conduct that analysis to identify how your research design and/or research outcomes may differentially impact or exclude various groups. **Consider how inclusion of a specific perspective on your team could help** to address potential exclusions and/or increase likelihood of positive impacts.
- To develop your capacity in anti-racism and anti-oppression strategies, see Office of Diversity and Human Rights resources:
  - Anti-Racism & Anti-Oppression Resources
  - Principles of Belonging: Anti-Oppression & Anti-Racism

[1] Gender-Based Analysis Plus (GBA+) is the process by which a policy, program, initiative or service can be examined for its impacts on various groups of women and men. See Gender-Based Analysis - Canada.ca

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

4. **INFRASTRUCTURE The requested infrastructure is necessary and appropriate to conduct the proposed research program(s) and optimally enhances existing capacity.**
   - Describe each requested item, including cutting-edge or workhorse equipment as well as upgrades to existing equipment, and justify why it is needed (including if it would replace existing capacity). If possible, refer to specific methodologies highlighted in the "Research or technology development" section.
   - Explain how the requested infrastructure enhances and integrates with the existing infrastructure capacity at your institution and at your partners' institution(s).

CFI Tips

- Consider providing a matrix matching the requested infrastructure with the proposed research activities.

U of G Suggestions:

1. If you require many items, group items into functional units (e.g. "data analysis suite"), making sure that the organization/terminology here matches that used in the spreadsheet. Provide a clear and concise explanation for the requested infrastructure items.
2. Justify items (or group of items) by answering the following questions:

   - How is this suite necessary to achieving the research objectives? If possible, explicitly identify which objectives it's required for and/or explicitly refer to steps in your methodology.
   - Why do you require more than one of a given item, if applicable?
   - If a specific type/make/model/style is required, then justify this choice.
   - If a large percentage of in-kind is expected for an item, give an explanation for why/how it is being offered and valued
   - Demonstrate that you know what equipment is available at U of G and partner institution(s). If similar equipment is located at U of G or partner institutions, explain why this equipment must be located here (or at partner campus.)

3. Include any minor renovation work that may be needed to safely and adequately house your equipment (i.e., electrical needs, additional venting, will it fit through doorways, etc.) For construction or renovation, detailed cost breakdown, timeline and floor plans must be provided in a separate document as part of the Finance module. For this reason,

Needs Assessment Forms are due with Draft 1. Physical Resources will use these to provide you with detailed estimates and floor plans (as needed).

4. Be specific with description—what building, what floor, square footage for each space within the lab, web lab or dry, ventilation (if special), load bearing (if special), co-location with other similar labs (if applicable), research use of each space, any additional security or safety features if these are included in costs. It should explain the floor plan.

Common weaknesses identified by reviewers:

- Little to no information is provided on existing infrastructure.
- Cost of infrastructure is not justified.
- Some of the items requested are duplicative.
- The link between infrastructure and proposed research is unclear and raises concern.

5. **SUSTAINABILITY The infrastructure will be optimally used and maintained over its useful life through tangible commitments.**
   - Present a management plan which:
     - Describes how the infrastructure will be optimally used (e.g., user access and level of use)
     - Describes how the infrastructure will be operated and maintained over its useful life
     - Outlines the operating and maintenance costs and revenue sources over the useful life of the infrastructure. Refer to the "Financial resources for operation and maintenance" tables in the project module
   - For larger and more complex projects, describe the proposed governance of the requested infrastructure, including the composition of its decision-making bodies.
   - For a multi-institutional proposal that requests an additional management and governance contribution, include a justification for this contribution.

CFI Tips

- **If the infrastructure will generate a significant amount of data, include a description of how this data will be managed**

U of G Suggestions:
Management plan:

- Explain how you will make the equipment accessible and to whom (what users beyond the core team).
- Are there any security, safety, or maintenance risks that you will need to mitigate? Who will maintain the equipment (What skills will your lab manager or technician need to have to maintain the equipment?)
- Consider locating equipment in a core facility such as the AAC that has established management systems.

O&M:

- Beyond IOF funding what funds will you use to support operation? Typically, these include Tri-Agency grants and user fees.
- Will your partners contribute to covering the operating costs?

Governance:

- Governance model (diagram) is often helpful.
- Ensure that partners (institutions and/or industry) are represented in decision-making, as appropriate for independent research.

Common weaknesses identified by reviewers:

- There is indication that outside members will have control over the project's infrastructure and will impact the research.
- Plan for long-term sustainability is not well articulated.

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

6. **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.**
   - Describe the team's plans to transfer the results of the research or technology
   - development program(s).
   - Describe the team's experience in knowledge mobilization and/or technology transfer.
   - Describe the potential benefits to Canadians, including the skills highly qualified

personnel will develop through using the requested infrastructure.

CFI Tips

- In addition to more common benefits, some other examples include: increased participation of underrepresented groups (including those who may face systemic barriers (see "How are systemic barriers defined?")), increased scientific literacy among the public, public engagement, partnerships outside of academia, published datasets

U of G Suggestions*:*

1. Do not underestimate the importance of this section. It is not an add-on; rather, it's integral to the CFI mandate and the Innovation Fund program goals. The project *must* generate value for Canada and humanity.
2. We recommend that you use a logic model to develop the pathway to impact and to identify any gaps or challenges to success. Work with the Knowledge Mobilization group at the Research Innovation Office to hone this.
3. Delineate the impact pathway beyond sectors. Benefits to sectors can result in benefits to Canadians, but the line from application/industry adoption to broader benefit must be explicitly articulated.
4. ECONOMIC Identify anticipated commercialization or technology/knowledge transfer, patents, spin-off companies, cost savings (improved efficiency). Consider the following questions and substantiate the answers:
    - Current $ value of the economic sector
    - What impact ($ growth) will your research lead to?
    - Number of people involved/employed within sector?
    - Will your research outcomes lead to jobs? What type? How many? When? Where-what sector and geographical location?
    - How will your research reduce cost for sector (and how much)?
5. SOCIAL/HEALTH
    - How will your research impact quality of life or reduce the burden of disease?
    - What changes in attitude, behaviour, policy, process, or practice will your research influence?
    - If these changes are realized, what improvements will we see in society?
6. BETTER TRAINING AND IMPROVED SKILLS
    - What specific vital and valuable skills will HQP gain?
    - Demonstrate that these skills that are highly valued by the current and future job market.

Common weaknesses identified by reviewers:

- The benefits outlined in the proposal are overreaching.
- The benefits are difficult to measure and therefore not feasible.
- The knowledge mobilization plan is generic and not described in detail.
- Resources and approaches to disseminate the research are not described.

ADDITIONAL