NEW FRONTIERS IN RESEARCH FUND (NFRF) – TRANSFORMATION 2024 LETTER OF INTENT (LOI) GUIDANCE DOCUMENT

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OVERVIEW

This document is intended to guide you in completing various sections of the LOI and fully addressing the assessment criteria. This document is not intended to replace a careful review of the Transformation competition overview or the LOI instructions.

Assessment Criteria:

The multidisciplinary panel will use the following criteria when reviewing your LOI:

- Interdisciplinarity (pass/fail)
- Equity, diversity, and inclusion in research practices (EDI-RP), and early career researchers (ECRs) (pass/fail)
- High risk (20%)
- High reward (60%)
- Feasibility (20%)

Reviewers will assess Interdisciplinarity, EDI-RP, and ECRs on a pass/fail basis. The High Risk, High Reward, and Feasibility criteria will be assessed on a seven-point scale, ranging from "Exceptional" to "Poor" (see the merit indicators for details).

Because this is a highly competitive funding stream, successful LOIs will most likely need to achieve all "Exceptional" scores, or at least a mix of "Exceptional" and "Excellent."

LIST OF PARTICIPANTS

Additional Co-PIs, Co-Applicants, and collaborators not included at the NOI stage can be added at the LOI stage. Additional Co-PIs and Co-Applicants must complete their profiles in the Convergence Portal. Collaborators do not need to create an account in the Convergence Portal.

While additional members may be added at the LOI and application stages, those identified at the NOI stage are expected to remain part of the project team. All **core members** of the team are expected to be confirmed when the LOI is submitted.

The team should include world-leading experts in all disciplinary areas. In order to demonstrate that the team has integrated this expertise the team should, wherever possible, include members from multiple institutions and regions.

RESEARCH PROPOSAL (maximum 10 pages)

General Tips

- The LOI will be reviewed by a multidisciplinary/multisectoral panel with a diversity of subject-matter expertise. Please ensure that the proposal is clear and compelling to both non-expert and expert reviewers.

- Write for a multidisciplinary audience, including those who may have limited familiarity with the proposed topic; avoid jargon and overly technical language.
- At the same time, provide enough information and detail to persuade reviewers who may have expertise in the topic.
- Ask both a subject-matter expert and someone outside the research area to read the proposal to ensure it is legible and compelling to a multidisciplinary audience.

- Clearly convey for the reviewers why the proposed project is transformative—you want to "sell" the project and get the panel excited about the research and its potential impacts.
- Use the program's [merit indicators] to inform the structure of your LOI, trying to address all of the bullet points assessed at the LOI stage.

There is no prescribed allocation of space or order of information for the research proposal, but be sure to address all four of these key areas:

- Novelty of approach
- Interdisciplinarity
- Feasibility
- Anticipated transformation/change/impact

Make it easy for the reviewers to find what they are looking for—use headings for each of the key areas (e.g., "Novelty of Approach," "Feasibility"), as well as relevant sub-headings (e.g., "Expertise," "Workplan," "EDI in Research Design," etc.)

More detail about each of the four key areas is outlined below.

Novelty of Approach

- Be concrete in describing how the research approach is novel, world-leading, and expected to lead to real change. State this point directly, making it explicit for multidisciplinary reviewers.
- Clearly explain the current gaps in knowledge/technology, and describe how the proposed project and the selected approach will fill these gaps.
- Include the potential challenges associated with implementation and describe plans to address these challenges. Explain why the identified approach is likely to succeed where others may have failed.
- Describe how the project integrates the knowledge of world-leading experts across disciplines.
- The "high risk" criterion is focused on the persuasiveness of the argument regarding novelty; this is an opportunity to craft a compelling narrative about the innovative, groundbreaking nature of the approach.

Interdisciplinarity

- The "interdisciplinarity" criterion is assessed on a pass/fail basis, and the onus is on the applicant to demonstrate to reviewers that the proposed project incorporates different disciplinary approaches to bring a novel perspective and approach to the project.
- Clearly demonstrate that the project is truly *inter*disciplinary, rather than *multi*disciplinary. Demonstrate that this is a coherent "whole-stack" project that is informed by the integration and synthesis of disciplinary expertise, as opposed to a series of siloed disciplinary projects. Explain how the different disciplines will interact together, including a description of how the different aspects or aims of the project are integrated.
- Provide a justification for interdisciplinarity that is specific to the project and compelling, (e.g., why the project requires an interdisciplinary approach and will benefit from this particular

combination of disciplines). Avoid generic language about the value of interdisciplinarity in general.

- Explain how researchers from the different disciplines will be integrated into the project and how they will work together across the different aims.
- Describe the researchers' prior experience in interdisciplinary research collaborations. Explain if team members from different disciplines have worked together previously.
- Consider including a figure presenting the relationship between the team members' expertise, the project themes, and the methodology.

Feasibility

- Feasibility is reviewed in greater detail at the full application stage; consult the merit indicators for more information on which elements are assessed at the LOI stage.
- The overall rating for the Feasibility criterion cannot be higher than the rating of any single element in the matrix. For example, if a reviewer scores most of the elements as Very Good, but one element is Poor, then the overall rating for Feasibility cannot be higher than Poor.
- Articulate the challenge/problem being addressed by the project, demonstrating that it is significant and that the team has a clear understanding of the challenge (which has then informed the approach selected to meet this challenge).
- Demonstrate the team's awareness of the current state of research in this area. Include a concise literature review/state of the field and cite the key works in your list of references.
- Include specifics on *how* the team will carry out the research (methods and approaches), as well as a realistic workplan and timeline. This sub-section could be another place to emphasize the project's interdisciplinarity.
- Equity, diversity, and inclusion in the research design (EDI-RD) must be addressed and discussed in the proposal if applicable to the research. If the project integrates EDI-RD, this point should be explained for all research aims (e.g., if there are three research aims and EDI-RD is mentioned in relation to only two aims, reviewers may assign a lower score).
- Demonstrate that the team has the resources necessary to complete the proposed project, clearly describing the availability of all required resources, infrastructure, facilities, etc.

Anticipated Transformation, Change or Impact

- The "high reward" criterion is worth 60% of the total score at the LOI stage, so it is especially important to demonstrate that the transformative potential of the proposed project.
- Clearly describe the anticipated impacts, including any significant benefits for Canadians (e.g., the project will meet socio-economic needs, produce a scientific breakthrough, improve health outcomes, address environmental challenges, etc.).
- Describe how the research will have a wide and diverse reach, and demonstrate the likelihood that the impact will be realized. For example, describe the pathways for achieving this impact, including plans for knowledge mobilization and translation, and identify specific end-users and/or partner organizations that will help realize this impact.
- Connect the particular research objectives and aims to the research outcomes and their impact on particular regions, populations, sectors, etc.
- Describe concrete, realistic, and measurable short-term benefits, as well as the wider and longer-term benefits and impacts.
- Ensure that information regarding anticipated impacts is specific and well-defined (rather than broad or high-level). Demonstrate impact with tangible examples wherever possible.

EQUITY, DIVERSITY & INCLUSION IN RESEARCH PRACTICE AND EARLY CAREER RESEARCHERS – OVERVIEW

NFRF Transformation LOIs must demonstrate the team's commitment to equity, diversity, and inclusion in research practice (EDI-RP), as well as the meaningful integration of early career researchers (ECRs).

General Tips for Addressing EDI-RP and ECRs

- **Do not simply copy and paste** text from this document into your application. Please tailor and customize these suggestions to fit the EDI context that is specific to your research team or research area(s). You are also encouraged to individualize the text to reflect team members' past experience in recruitment, mentoring, and training.
- The discussion of EDI-RP should include **specific** and **intentional** practices that proactively address EDI in recruitment practices, training/mentorship, and the research and training environment. This specificity will not only be convincing to reviewers, but will also enable your team to develop and actually carry out an EDI plan. Practices should be implemented on an **ongoing basis**—EDI work requires sustained effort.
- Be sure to identify practices that are feasible and that you can meaningfully implement over the life of the research grant (and beyond).
- Structure the content of the EDI-RP and ECR sections around the merit indicators, ensuring that you directly speak to the points in the "Pass" column.
- **Do not** include any personal information about team members or trainees in the EDI section. The focus is on the team's commitment to EDI, as demonstrated by concrete plans and actions, not on its demographic profile.

EDI ANALYSIS OF CONTEXT (maximum 2,500 characters)

This part of your Transformation LOI must describe the EDI context of team, focusing on the specific circumstances or EDI challenges related to the team, the institutions, or the research disciplines.

- You might start by asking the following questions (adapted from this resource developed by the Chair for Women in Science and Engineering – Quebec Region):
  - Is there diversity in the current team, or in the relevant research fields in general?
  - If no, what are some of the key explanations? What systemic barriers exist?
  - If yes, is this diversity the result of intentional actions or of chance? What can teams do to more **intentionally** engage and support members of under-represented groups?
  - What are the usual practices for recruitment and research training in your team or research disciplines? Are these practices fair and consistent?
  - Do all team members and trainees feel included and supported in their success? Why or why not?
- When thinking about this context, point to **specific systemic barriers** and structural biases that have an impact on the disciplinary areas. For example, you could discuss some of the following barriers, as relevant, providing additional details specific to the team context:
  - The impact of unconscious bias in recruitment/hiring and peer review
  - An unwelcoming or hostile research climate and culture
  - Narrow definitions of excellence that undervalue emerging areas of research, non-traditional scholarship, or Indigenous ways of knowing
  - Inequitable access to research, training, and career development opportunities

- ➢ A lack of role models/mentors for students, trainees, and junior faculty members from under-represented groups
- ➢ Exclusion from networks, particularly informal networks
- ➢ Physical, sensory, and other barriers experienced by researchers with disabilities
- ➢ Disproportionate service burdens faced by faculty members from under-represented groups
- ➢ Isolation, microaggressions, and stereotyping for those who are especially under-represented in their department or discipline
- ➢ The "hidden curriculum" in research (norms, practices, unwritten rules), which can be exclusionary

- If you require additional resources on systemic biases and barriers, please contact Andrea Gill, Research Equity & Development Strategist, at amk.gill@utoronto.ca.
- As noted in the merit indicators, the context and the barriers identified in this section must be addressed by the specific actions to be described in the remainder of the EDI-RP section.
- Describe the team's overall commitment to advancing EDI and addressing these barriers. As applicable, discuss the team's strengths related to EDI-RP. For example, describe team members' expertise in EDI and their experience in initiatives or leadership activities designed to promote an equitable, diverse, and inclusive research community.
- **Do not** include demographic or identifying information about team members or trainees, including the number of team members belonging to each under-represented group.

EDI-RP PRACTICES

In the next sections of your Transformation LOI, you will name and describe the best practices that you will adopt for each of the following areas:

- team composition and recruitment processes;
- training and development opportunities; and
- inclusion

For examples of best practices to advance EDI, please consult the VPRI handbook on **Addressing EDI in Your Research Funding Application (Research Teams and the Training of Highly Qualified Personnel)**. This handbook offers a range of potential practices to support EDI in your research team and HQP training, as well as excerpts from successful funding applications at U of T. Links to institutional resources have been included for your reference and information; it is **not sufficient** to simply state that you will follow an institutional policy or to link to an existing institutional policy or resource.

You are also encouraged to consult the following resources:

- NFRF, Best Practices in Equity, Diversity and Inclusion in Research
- NSERC, Equity, Diversity and Inclusion Considerations for Research Teams
- SSHRC, Guide to Addressing Equity, Diversity and Inclusion Considerations in Partnership Grant Applications

These resources are intended to provide you with a wide range of potential practices. While researchers should strive to implement EDI in all aspects of their research and training programs, because there are strict character limits in the NFRF EDI-RP form, you will need to **describe the particular strategies that are most applicable** to your research team context. At the same time, this list of resources and suggested practices is not exhaustive, and you are encouraged to describe other relevant strategies or resources with which you are familiar.

Provide the Best Practices (maximum 250 characters for each area)

For each of the three areas (team composition and recruitment, training and development, and inclusion), provide the best practices that your team has adopted/will adopt.

- For each area, identify **at least one concrete practice**, describing specific steps and processes.
- Name or list the practice(s) using concise language, providing further description in the "Relevance, Approach, and Expected Impacts" section (see below).
- Each of these specific practices must be related to the context and challenges you have described in the "Analysis of Context" section.

Provide the Relevance, Approach, and Expected Impacts (maximum 2,500 characters for each area)

For each of the three areas (team composition and recruitment, training and development, and inclusion), provide an explanation of the best practices you have identified in the preceding section.

For examples of promising EDI practices, please consult the VPRI handbook on [Addressing EDI in Your Research Funding Application (Research Teams and the Training of Highly Qualified Personnel)](), which includes guidance on implementing EDI practices on an ongoing basis.

Describe the salience, approach, expected impacts, and how the impacts will be measured:

- Describe the relevance to your team for each of the identified practices. Each practice must be **specific to the context of the research team** you have described in the "Analysis of Context" section; be sure to make the connections between the context and the practices clear for the reviewers.
- Describe how the team members are already engaged in EDI practices. Describe actions undertaken to date, as well as how they will continue going forward.
- Describe the implementation of these practices—say how you will carry them out, what specific steps you will take, how you will follow through on these practices over the life of the grant, etc.
- Describe any potential challenges in implementing these practices, as well as plans to mitigate or address these challenges.
- Describe the anticipated impact of these practices on EDI within your team, and include the measures/indicators for assessing this impact.
- When assessing impacts related to recruitment, keep in mind that you most likely won't have access to self-identification information for trainees and team members. Instead of measuring impact by providing demographic information, for example, you could point to the size and breadth of applicant pools or to successful outreach and engagement with prospective trainees/team members.
- Other measures of impact might include the following:
  - Successful completion of EDI team training/education (e.g., number of team members completing EDI education, number of workshops attended, hours of training completed)
  - Equitable delivery of training and development opportunities, relative to career or academic level (hands-on experience, co-publications, conference presentations, mentorships, networking, etc.)
  - Successful execution of mentorship/training plans

- Organization of accessible and inclusive events
- Increased diversity among invited speakers or presenters
- Effective resolution of concerns/complaints

EARLY CAREER RESEARCHERS (maximum 3,500 characters)

In this section of your Transformation LOI, you will provide a description of how ECRs will be integrated into team activities. Include plans to support ECRs' leadership and development throughout the project.

- Provide **concrete measures** to show how ECRs will be actively and meaningfully involved in the research, training, and knowledge mobilization activities of the team.
- Wherever possible, go beyond the minimum requirement of including one ECR in the team, especially if there are ECRs who may bring valuable expertise or interdisciplinary experience to the project.
- Indicate how ECRs will be involved over the lifetime of the project.
- Describe how the expertise of ECRs on the team will contribute to the success of the proposed research and to the interdisciplinary aims of the project.
- Demonstrate how ECRs will be engaged in team leadership, management, and/or decision-making.
- Describe the ways in which team leaders will develop ECRs' capacity through workshops, networking opportunities, career development supports, and other resources.
- Discuss the mentorship opportunities and supports provided to ECRs. Ensure that ECRs have access to a network of mentors to foster their career development and support them in building a complementary set of skills (interdisciplinary research, experience using infrastructure, publishing, leadership, HQP training and development, lab management, knowledge of EDI, etc.).
- Describe how participation in the team will further position the ECRs as leaders in this topic or in interdisciplinary research.
- If ECRs will act as mentors to trainees, ensure this mentorship work is equitably distributed and that ECRs are not over-burdened.
- While this section may include information about team members' affiliations (including institutions, departments, and labs), it must not include personal or identifying information, including team member names, gender identity, race, disability, etc.