**Ontario Research Fund — Research Excellence Stream 2: Targeted**

 **Round 12 Application**

Use this form to complete your full draft of the application for review by the Research Services Office (due August 21). Please type your answers directly into the boxes provided; boxes will expand to accommodate your text. Figures, images, and letters of support (if available) should be sent as separate files.

When submitting your *final* version of the application (due September 18), you must use the Ministry’s [official PDF application form.](https://forms.mgcs.gov.on.ca/dataset/on00303) Attachments must follow the formatting instructions found on page 20 of the ORF-RE program guidelines.

**1. GENERAL INFORMATION**

**Proposal Title**

Enter the name of your proposal in non-technical language. Please be concise.

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**Amount Requested from the ORF**

Indicate the Canadian dollar value of the requested ORF-RE grant.

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**Project Sector**

Indicate the targeted sector that applies to your project proposal (\*priority research area that supports government initiative):

[ ]  Automotive\* (includes electric vehicles)

[ ]  Artificial Intelligence\*

[ ]  Clean Technologies

[ ]  Critical Minerals\* (includes research that supports [Ontario’s Ring of Fire](https://www.ontario.ca/page/ontarios-ring-fire))

[ ]  Environmental and Natural Sciences (includes mineral exploration)

[ ]  Genomics\*

[ ]  Industrial Technologies (includes advanced manufacturing, advanced materials, robotics, 3D printing, logistics and related specialty materials)

[ ]  Information Communication Technologies (ICT) (includes distribute ledger-technology, fintech, smart cities, and internet of things)

[ ]  Life Sciences\* (includes medical technology, pharma/biotech, digital health, and personal protective equipment)

[ ]  Medical Devices\*

[ ]  Quantum Technology

[ ]  Social Sciences

**Technology Readiness Level (TRL)**

Please indicate the TRL of 3 or above for the proposed innovation (refer to the program guidelines and Appendix B). Proposals with a TRL under 3 are not eligible to apply to Stream 2.

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TRL Number:

Explain why the proposed innovation is at the identified TRL. Maximum of half (0.5) a page.

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**Expected Project Start Date (yyyy/mm/dd)**

This date can be the date on the Award Notification Letter or an earlier Start Date which will not be any earlier than the date of the call for proposals for this round, which is June 15, 2023.

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**Lead Institution Contact**

Last Name First Name Title

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| --- |
| Hamilton Kevin Director  |

**Institution Address**

Unit Number Street Number Street Name PO Box

|  |
| --- |
|  12 Queen’s Park Crescent West  |

City/Town Province Postal Code

|  |
| --- |
| Toronto Ontario M5S 1S8 |

Telephone Number Email Address

|  |
| --- |
| 416-978-7605 kevin.hamilton@utoronto.ca |

**Principal Investigator**

Last Name First Name Title

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Host Institution/Organization

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Department

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Unit Number Street Number Street Name PO Box

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City/Town Province Postal Code

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Telephone Number Email Address Number of Co-investigators

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**Co-Principal Investigator (if applicable)**

Last Name First Name Title

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Host Institution/Organization

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Department

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Unit Number Street Number Street Name PO Box

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City/town Province Postal Code

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Telephone Number Email Address

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**Alignment by Canadian Research and Development Classification Code (CRDC)**

You must identify the Canadian Research and Development Classification (CRDC) Codes for each of the three areas listed below. Refer to Appendix A in the program guidelines for further details.

(1) Type of Activity (TOA)

Code Division Title/Name

|  |  |
| --- | --- |
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(2) Fields of Research (FOR)

Level 1 Code Division Title/Name

|  |  |
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Level 2 Code Group Title/Name

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Level 3 Code Class Title/Name

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Level 4 Code (optional) Subclass Title/Name (optional)

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(3) Socioeconomic Objective (SEO)

Level 1 Code Division Title/Name

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Level 2 Code Group Title/Name

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**Project Keywords**

List up to 10 key words that describe the project.

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**Collaborating Institution(s)**

List other institution(s) collaborating on the project. Please identify any non-Canadian institutions.

*Add as needed*

Institution #1

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| Name: |
| Organization Location Within Canada (Province): | Organization Location Outside Canada (Country): |
| Collaborating Researcher/Individual Name: | Role: |
| Cash Contribution Amount $CAD (if applicable): | In Kind Contribution Amount $CAD (if applicable): |

Institution #2

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| Name: |
| Organization Location Within Canada (Province): | Organization Location Outside Canada (Country): |
| Collaborating Researcher/Individual Name: | Role: |
| Cash Contribution Amount $CAD (if applicable): | In Kind Contribution Amount $CAD (if applicable): |

Institution #3

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| Name: |
| Organization Location Within Canada (Province): | Organization Location Outside Canada (Country): |
| Collaborating Researcher/Individual Name: | Role: |
| Cash Contribution Amount $CAD (if applicable): | In Kind Contribution Amount $CAD (if applicable): |

Institution #4

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| --- |
| Name: |
| Organization Location Within Canada (Province): | Organization Location Outside Canada (Country): |
| Collaborating Researcher/Individual Name: | Role: |
| Cash Contribution Amount $CAD (if applicable): | In Kind Contribution Amount $CAD (if applicable): |

**Private Sector Partner(s)**

Provide a list of private sector partner(s) (PSP) involved in the project. Letters of Support are required for each, as part of Section 10 (Attachments).

Organization #1

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| Name: |
| Organization Location Within Canada (Province): | Organization Location Outside Canada (Country): |
| Collaborating Researcher/Individual Name: | Role: |
| Cash Contribution Amount $CAD (if applicable): | In Kind Contribution Amount $CAD (if applicable): |

Organization #2

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| --- |
| Name: |
| Organization Location Within Canada (Province): | Organization Location Outside Canada (Country): |
| Collaborating Researcher/Individual Name: | Role: |
| Cash Contribution Amount $CAD (if applicable): | In Kind Contribution Amount $CAD (if applicable): |

Organization #3

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| --- |
| Name: |
| Organization Location Within Canada (Province): | Organization Location Outside Canada (Country): |
| Collaborating Researcher/Individual Name: | Role: |
| Cash Contribution Amount $CAD (if applicable): | In Kind Contribution Amount $CAD (if applicable): |

Organization #4

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| --- |
| Name: |
| Organization Location Within Canada (Province): | Organization Location Outside Canada (Country): |
| Collaborating Researcher/Individual Name: | Role: |
| Cash Contribution Amount $CAD (if applicable): | In Kind Contribution Amount $CAD (if applicable): |

**PI and Co-PIs’ Interests in Private Sector Partners**

Indicate any interest by the researcher in any of the private sector partners named in the proposal.

[ ]  No [ ]  Yes

If yes, describe the relationship between the PI and/or Co-PIs and the company

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**PI and Co-PI’s Involvement in Foreign Entities**

Do the PI, Co-PI(s) and/or other individual(s) listed in the application currently hold any position or role, whether paid or voluntary at any foreign government, foreign academic or research institutions, Canadian military/defense entity, foreign military/defense entity, any foreign private enterprise and/or foreign community organizations?

[ ]  No [ ]  Yes, provide details in the table below

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| PI/Co-PI Name | Entity | Position | Country | Details |
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Do the PI, Co-PI(s) and/or other individual(s) listed in the application currently hold any position or role, whether paid or voluntary at any foreign government, foreign academic or research institutions, Canadian military/defense entity, foreign military/defense entity, any foreign private enterprise and/or foreign community organizations?

[ ]  No [ ]  Yes, provide details in the table below

|  |  |  |  |
| --- | --- | --- | --- |
| PI and Co-PI Name | Funding Source | Funding Amount | Details |
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**Advanced Research Computing Infrastructure**

Does this application include a request for new or advanced research infrastructure resources (e.g. capacity or throughput computing, high performance storage, computing using specialized accelerators including GP-CPU and others, etc.), in excess of $99,999?

[ ] No [ ]  Yes

If yes, refer to the Budget section of the Program Guidelines under Facilities and Equipment category for additional program requirements.

**2. RESEARCH EXCELLENCE**

Sections 2 – 9 should add to no more than 30 pages in total (excluding References and Figures sections). There are no character limits for each of these sections. Applicants should use the space as appropriate.

**Scientific Merit**

Describe what is new and significant about the research that has led you to the proposed experimental research project.

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**Linkages to previously funded ORF-RE projects**

Describe how this proposal enhances/improves previously funded ORF-RE project(s), if applicable.

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**Proposal Integration**

If the proposal includes multiple sub-projects, describe how you plan on integrating the projects/topics.

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**Research Collaboration**

Describe the nature and level of inter-institutional and/or international research collaborations.

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**Principal Investigator and Co-Investigators**

Maximum of 0.5 pages per investigator. Include relevant qualifications, time spent on the project, and expected contributions.

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**3. COMMERCIALIZATION POTENTIAL**

**Proposal Brief**

Describe in no more than three lines, using simple and non-technical language, the objective and key elements of this proposal. The brief may be used, in whole or in part, in press releases or similar material if the proposal is successfully funded.

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**Proposal Abstract**

Provide a proposal abstract, using simple and non-technical language. Do not include images in the abstract.

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**Proposal Description**

Describe the proposed innovation and technology to be developed.

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**References**

References will be attached to your final application. RSO does not need references at this stage.

**Figures**

For the editorial review by RSO, please send your figures as separate attachments.

**Proposal Innovation**

Describe what is new and significant about the innovation, and the unique benefits and value of the innovation to be commercialized.

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**Market Analysis**

Describe the market opportunity and a description of primary competitors.

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**Principal Investigator and Co-Investigators**

Maximum of 0.5 pages per investigator. Include relevant experience and expertise as it relates to the commercialization of the proposed innovation.

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**4. STRATEGIC VALUE TO ONTARIO**

Describe the commercialization impact and anticipated value of the proposal to Ontario.

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**5. PLAN FOR ACHIEVING IMPACT**

**Commercialization Implementation Plan**

Describe the planned path to commercialization within the project timeframe, including a strategy for achieving commercialization potential and practical application to industry.

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**Commercialization Financial Strategy**

Outline your financial plan for commercialization.

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**Commercialization Management Plan**

Identify the commercialization team. Explain the roles of your private sector partners, industry liaison office or other commercially experienced advisors involved in the commercial or IP tracking and actions and outline accountability and reporting mechanisms.

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**Intellectual Property Strategy**

Explain your proposed IT strategy and how it will generate benefits to Ontario and Ontarians.

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Please state who assisted you in creating your commercialization plan (e.g., your private sector partner(s); mentor; etc.). Please note that applicants are required to work with the industry liaison office (or equivalent) in the development of the commercialization plan.

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**6. DEVELOPMENT OF RESEARCH TALENT**

**Plan for Development of Research Talent**

Briefly outline the plan for development of Highly Qualified People (HQP).

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**Total Number of HQP Trained**

|  |  |
| --- | --- |
| **Type of HQP** | **Number** |
| Undergraduate Student |  |
| Master Student |  |
| PhD Candidate |  |
| Post Doctorate |  |
| Other |  |
| **Total Number** |  |

**7. PROJECT MANAGEMENT AND GOVERNANCE**

Outline how the project will be managed. Image is encouraged. For the editorial review by RSO, please send your image as a separate attachment.

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**8. OTHER PROJECT REQUIREMENTS**

**Intellectual Property Training**

List (if any) IP training the research team has undertaken recently either through their respective institution or through [University of Toronto – IP Education Program](https://entrepreneurs.utoronto.ca/for-entrepreneurs/ip-education/) or [CIGI – Foundations of IP Strategy](https://cigimooc.org/)

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**Youth Outreach Plan**

Describe a plan for youth outreach activities. Applicants may use up to 1% of the ORF portion of funding for related activities.

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**9. MILESTONES AND DELIVERABLES**

***(Please add additional rows as needed.)***

**Project Management Milestones**

List major milestones, the significance and expected year of completion. Each Milestone has a 250 character limit.

|  |  |  |
| --- | --- | --- |
| **Item** | **Project Management** | **Deliverable Timeline****(year 1 through 4)** |
| 1. |  |  |
| 2. |  |  |
| 3. |  |  |

**Research Capacity Building Milestones**

Note: each Milestone has a 250-character limit.

|  |  |  |  |
| --- | --- | --- | --- |
| **Item** | **Research Capacity Building** | **Deliverable Timeline****(year 1 through 4)** | **Significance** |
| 1. |  |  |  |
| 2. |  |  |  |
| 3. |  |  |  |

**Research Excellence Milestones**

Note: each Milestone has a 250-character limit.

|  |  |  |  |
| --- | --- | --- | --- |
| **Item** | **Research Excellence** | **Deliverable Timeline****(year 1 through 4)** | **Significance** |
| 1. |  |  |  |
| 2. |  |  |  |
| 3. |  |  |  |

**Achieving Research Impact Milestones**

Note: each Milestone has a 250-character limit.

|  |  |  |  |
| --- | --- | --- | --- |
| **Item** | **Strategic Value to Ontario** | **Deliverable Timeline****(year 1 through 4)** | **Significance** |
| 1. |  |  |  |
| 2. |  |  |  |
| 3. |  |  |  |

**Commercialization Milestones**

Note: each Milestone has a 250-character limit.

|  |  |  |  |
| --- | --- | --- | --- |
| **Item** | **Commercialization Activities** | **Deliverable Timeline****(year 1 through 4)** | **Significance** |
| 1. |  |  |  |
| 2. |  |  |  |
| 3. |  |  |  |

**Youth Outreach Milestones**

Note: each Milestone has a 250-character limit.

|  |  |  |
| --- | --- | --- |
| **Item** | **Youth Outreach** | **Deliverable Timeline****(year 1 through 4)** |
| 1. |  |  |
| 2. |  |  |
| 3. |  |  |

**Other Milestones**

Note: each Milestone has a 250-character limit.

|  |  |  |
| --- | --- | --- |
| **Item** | **Other** | **Deliverable Timeline****(year 1 through 4)** |
| 1. |  |  |
| 2. |  |  |
| 3. |  |  |

**10. PROJECT BUDGET**

**Annual Budget**

Provide a zero-based budget in the table below that details all expenses and revenue sources. All totals will be calculated automatically. The ORF request will be automatically calculated as the difference between the total project expenses and the contributions from other sources.

**Expenses – Cash ($CAN)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Year 1 | Year 2 | Year 3 | Year 4 | **Total** |
| Personnel |  |  |  |  |  |
| Facilities and Equipment |  |  |  |  |  |
| Other Direct Research Expenses |  |  |  |  |  |
| Management and Administration |  |  |  |  |  |
| **Total Cash Expenses** |  |  |  |  |  |

**Expenses – In-Kind ($CAN)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Year 1 | Year 2 | Year 3 | Year 4 | **Total** |
| Personnel |  |  |  |  |  |
| Facilities and Equipment |  |  |  |  |  |
| Other Direct Research Expenses |  |  |  |  |  |
| Management and Administration |  |  |  |  |  |
| **Total In-Kind Expenses** |  |  |  |  |  |

**Expenses – All ($CAN)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Year 1 | Year 2 | Year 3 | Year 4 | **Total** |
| Applicant Overhead |  |  |  |  |  |
| **Total All Expenses** |  |  |  |  |  |

**Contributions Summary – Institution ($CAN)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Year 1 | Year 2 | Year 3 | Year 4 | **Total** |
| Institution Cash |  |  |  |  |  |
| Institution In-Kind |  |  |  |  |  |
| **Total Institution** |  |  |  |  |  |

**Contributions Summary – Private Sector ($CAN)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Year 1 | Year 2 | Year 3 | Year 4 | **Total** |
| Private Sector Cash |  |  |  |  |  |
| Private Sector In-Kind |  |  |  |  |  |
| **Private Sector Total**  |  |  |  |  |  |

**Contributions Summary – Other ($CAN)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Year 1 | Year 2 | Year 3 | Year 4 | **Total** |
| Other Cash |  |  |  |  |  |
| Other In-Kind |  |  |  |  |  |
| **Other Total** |  |  |  |  |  |
| **Total Contributions** |  |  |  |  |  |
| **ORF Request** |  |  |  |  |  |

**Private Sector Contributions** (Letters of support should correspond to amounts listed in this section)

***Add additional rows as necessary.***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Item** | **Name of Private Sector Partner** | **Cash Contribution** | **In-Kind Contribution** | **Timing of Contribution** |
| 1. |  |  |  |  |
| 2. |  |  |  |  |

**Budget Justification**

Provide a detailed justification for the amount requested in each expense category.

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**11. ATTACHMENTS**

All attachments including letters of support and CVs must add to no more than 20 pages in total.

Please send **a draft institutional letter** (as a separate attachment) for administrative review by the Research Services Office. Use the institutional letter template provided by the Research Services Office.

Optional: If available, please send partner letters of support (as separate attachments) for administrative review. Use the partner letter template provided by the Research Services Office.

CV’s should have been submitted previously for a research security review.

**MITIGATING ECONOMIC AND GEOPOLITICAL RISK CHECKLIST**

This section should have been submitted previously for a research security review.

Please ensure you download the [official form](https://forms.mgcs.gov.on.ca/en/dataset/on00352) from the MCU website for final submission.