

Challenge-driven Innovation Fund

Call for Proposals Guidance

Deadline for Project Outline Submission: Sunday, 7th August 2022

Deadline for Full Proposal Submission: TBC

I. General Information

A. Program Description

Ignite's Challenge-driven Innovation Fund (CIF) aims to build on new, cutting-edge directions in information and communication technology to disrupt a field and a market or create new opportunities by realizing innovative technological solutions grounded in high-risk/high-gain research and development. With each specific challenge, the Ignite will establish a portfolio of projects that explore different perspectives, competing approaches, or complementary aspects of the challenge. The complexity and high-risk nature of this research will require multidisciplinary collaborations. The objective is to ask the researchers to help solve the problems facing the country. A consortium of (applicants from) universities, industry, and/or research organizations will be eligible to submit research proposals. Project participation from industry, public authorities, or other relevant organizations will be considered merit.

With projects funded under the Challenge-driven Innovation Fund, the Ignite aims to build a portfolio of coherent projects with a medium to the long-term business goal and a technology-based strategic plan. For this purpose, they may include applied research, technology development and/or method/tool and integration, testing, and validation on a small-scale prototype in a laboratory or simulated environment. Project outcomes must also include top-level scientific publications as well as adequate formal protection of the generated intellectual property (IP). The activities have their centre of gravity at Technology Readiness Level 3 to 4.

B. Thematic Areas

The following areas of strategic significance have been identified for the program:

- **Transport and Smart Mobility**, including but not limited to:
 - Ensuring secure, connected, cooperative and automated mobility and transportation
 - Managing interactions between humans and vehicle
 - Implementing infrastructure and services for smart personnel mobility and logistics
- **Health and Well-being**, including but not limited to:
 - Assistive technologies for differently-abled persons
 - Bio-informatics and Big-Data Analytics
 - Health information technology to identify disparities in healthcare systems
 - Developing platforms for wearables/implants, data analytics, artificial intelligence for precision medicine, and personalized healthcare and well-being
- **Climate Change and Environment**, including but not limited to:
 - Climate and environmemodeling o Disaster surveillance and management



- Protection of available trees through artificial intelligence system controls
- Metro-scale pollution reduction technologies
- **Education and Learning**, including but not limited to:
 - Edtech solutions
 - Tools for Blended learning
- **ICT enabled Agriculture**, including but not limited to:
 - Artificial Intelligence and Big-Data analytics for precision agriculture
 - Improving water management systems using ICT
 - ICT-enabled integrated pest management
- **Smart Energy**, including but not limited to:
 - Smart and sustainable energy solutions for urban, rural, and remote areas
 - Improving energy efficiency through community energy management
 - Innovative mechanisms for reduction in transmission and grid losses in legacy infrastructure
- **Smart Cities and Communities**, including but not limited to:
 - Sustainable urban design
 - Low-cost housing
 - Planning for and preservation of urban space and life
 - Quality of urban life such as issues related to transportation, waste collection and disposal, water and sanitation, healthcare and education, and law and order
- **Digital Industry**, including but not limited to:
 - Developing Digital twins, simulation models for the evaluation of industrial assets at all factory levels
 - Implementing AI and machine learning, to detect anomalies or similarities and to optimize parameters
 - Developing digital platforms, application development frameworks that integrate sensors/actuators and systems
- **Digital Life**, including but not limited to:
 - Ensuring safe and secure spaces
 - Ensuring healthy and comfortable spaces
- **Connectivity and Interoperability**, including but not limited to:
 - Meeting future connectivity requirements leveraging heterogeneous technologies
 - Enabling nearly lossless interoperability across protocols, encodings and semantics
 - Ensuring Secure Connectivity and Interoperability
- **Safety, Security and Reliability**, including but not limited to:
 - Safety, security and privacy by design
 - Reliability and Functional Safety
 - Secure, safe and trustable connectivity and infrastructure
 - Privacy, data protection, and human interaction

Within each of the above-mentioned strategic themes, sub-themes or topics have been introduced to guide the applicants. The topics identified for the challenge-driven call will evolve, with new topics identified in subsequent calls. The Ignite will organize various discussions and consultation sessions to help identify the most promising emerging topics for the challenges, and the Program Managers are expected to play a central role in this process.

C. Eligibility Criteria:

The Challenge-driven Innovation fund supports collaborative research and innovation from consortia. The proposal must be submitted by the coordinator on behalf of the consortium that includes:

- **At least two** independent Pakistan-based legal entities (i.e., university/research organization and industry).
- The legal entities may for example be universities, research organizations, large companies, or SMEs.
- International collaborations are encouraged when the international partner brings a unique added value to the project team.

Submission must be made to the IGNITE online portal according to the guidance provided in the Call for Proposals.

D. Anticipated Funding

The budgets for Challenge-driven Innovation projects are anticipated to range between **Rs. 10 million – 100 million, with a project duration of 2-3 years**. Co-financing – including in-kind and cash contributions – by industry partners will be considered a merit and is an indicator of industry support. Complementary financing for the projects is desirable. The grant awards will be made and administered through the lead partner institution. The project budget can finance the following activities:

- a. Salaries for PI and co-PIs based on the amount of time spent on the project
- b. Stipends for bachelors, masters, doctoral students and post-doctoral scholars to conduct the research and innovation activities including product development and testing
- c. Travel to national and international meetings to present research results obtained and in support of the proposed research
- d. Processing fee for open access journals for disseminating research results obtained
- e. Patent filing
- f. The purchase and maintenance of appropriate approved equipment and supplies to conduct the research proposed
- g. Institutional overheads
- h. A component of the grant will be earmarked for the problem solving (i.e., it will be released only if there is demonstrable evidence of success in solving a problem).
- i. Limited research and development costs

E. Due Dates

- Project Outlines must be submitted to Ignite by, August 7, 2022
- Invited Full Proposals must be submitted to CIF by TBC

II. Proposal Preparation Instructions

A. Basic Guidance

All researchers interested in submitting a proposal for the CIF must first submit a Project Outline to the Ignite. Those Project Outlines that pass an initial screening will be invited to submit a Full Proposal to the Ignite. Project Outlines, and Full Proposals, must be submitted through online portal.

B. Proposal Formatting

All invited Full Proposals should use the .docx Full Proposal Template Document as the basis for the submission. The section guidance should be deleted prior to proposal submission. Proposals must be submitted in English.

Full Proposals should include a Table of Contents.

All sections of the template – either the Project Outline or the Full Proposal - must be completed prior to submission. The list of required sections – and the guidance for the content within each section – is provided in Section III below of this Call for Proposals.

- The page limit for each section must not be exceeded.
- All pages of the proposal should have a page number.
- Proposals should be submitted in 11-point point, Calibri font.
- Tables should be completed in the format and length indicated in the relevant Template document (.docx).
- Proposal sections should not include URLs for additional information. Information or documentation beyond that included in the written proposal will not be used in the evaluation process.
- Proposals should follow accepted academic practice in citing references throughout the proposal. References should be numbered sequentially and listed separately as a required attachment to the proposal. References should be reported in a standard form, and include the names of all authors; the article and journal-title; book title; volume and page numbers; and year of publication. If available, a Digital Object Identifier (DOI) may be provided.

III. Required Proposal Sections

The required sections for the Project Outline submission and the Full Proposal submission are described below. All submissions should address the identified topics for each section. Do not exceed the maximum page limit for each section.

A. Project Outline Submissions

All Principal Investigators interested in submitting Full Proposals for consideration in the CIF Call for Proposals must complete and submit a Project Outline. The purpose of the Project Outline is to ensure that submitted proposals are (i) eligible for the competition, and (ii) respond to the thematic areas as described in the Call for Proposals. Principal Investigators must complete each section of the proposal as described in the attached link to the Project Outline Template .docx Document. As noted above, collaborative research teams are anticipated in CIF proposals. It is expected that the Principal Investigator will have had extensive communication with all anticipated partners prior to the submission of the Project Outline, and will have obtained confirmation of participation in the project if it is selected for funding.

B. Full Project Submissions

Full Proposals will only be accepted from those Principal Investigators who are invited to submit a Full Proposal following the evaluation of a submitted Project Outline. Principal Investigators must

complete each section of the proposal as described in the attached link to the Full Proposal Template .docx Document.

IV. Proposal Submission Procedure

All CIF proposals must be submitted by the Principal Investigator. The Head of the institute at which the PI is an employee should endorse the submitted project through the appropriate mechanism using the Ignite online portal.

V. Evaluation and Selection Process

The selection of Challenge-driven Innovation Grant awards will be made through an open, rigorous, transparent, competitive, and merit-based process consistent with international standards for funding research and innovation projects. All Full Proposals submitted in response to this Call for Proposals will be evaluated by independent experts. The evaluation process consists of three sequential steps:

1. Project Outlines Review

For the Project Outline Review, an administrative review will be undertaken by the Ignite to ensure that the Principal Investigator and lead institution submitting each Project Outline is eligible to submit a full proposal.

Subsequent to the administrative review, each Project Outline will be assigned to a review panel. The review panels will determine whether the proposed research concept aligns with the CIF program goals and whether the proposal implementation would lead to a substantive contribution to addressing the socio-economic development issues of Pakistan. Project Outlines that the review panel decides are not competitive at this point will be rejected, and the review panel will provide written comments/justification for the decision. The identities of the evaluators will be redacted.

2. Desk Evaluation of the written Full Project Proposal

For the Desk Evaluation, Full Proposals will be grouped by thematic area and assigned to a Panel for evaluation. Each Panel will be composed of a team of experts - including international academic leaders and subject matter experts – who will evaluate the written proposals. Each Full Proposal will be independently evaluated by at least two members of the Panel, and additional reviews may be obtained by appropriate subject matter experts.

The expert evaluators will assess each proposal according to a scoring rubric, and will provide written comments on the proposal. All members of the Panel will discuss each Full Proposal assigned to the Panel. Following the Desk Evaluation of Full Proposals, a short list of the top ranked proposals will be considered in the third stage of the Evaluation process. This short-list will be reasonably balanced across thematic areas.

3. Presentation before an Expert Panel

An Expert Panel will be convened to recommend which short-listed Full Proposals are selected for CIF Funding. The focus of the Expert Panel is on assessing in person the capacity of the research team and the host institution to deliver on what is described in the written proposal.

This will be accomplished through a presentation by the Principal Investigator and the institution that submitted the short-listed proposal. The presentation team should include: institutional leadership, the Principal investigator and key members of the consortia; and sectoral partners.



The Expert Panel will assess each proposal according to a scoring rubric, and should offer additional written comments on the proposal.

Following the completion of presentations by all of the short-listed teams, the Expert Panel will formulate recommendations for on the proposals that should be selected for CIF support.

VI. Grievance Procedure

Applicant(s) may submit a grievance notice if not satisfied with the decision on the submitted proposal which will be processed by the Program Manager as per procedure to address grievance notices.

In exceptional circumstances, institutions submitting a full Proposal that was not selected for funding may submit a written Notice of Grievance to the Program Officer, Ignite within Seven (07) working days of results being announced. A Notice of Grievance is permitted only when the institution believes that the proposal was not evaluated fairly or in a reasonable manner.

VII. Negotiation and Implementation

Following the Evaluation and Selection process, the Ignite will enter into negotiations with the PI and the host institution.

The final budget for each selected GCF budget will be negotiated following the evaluation and selection process. The budget will depend upon: the proposed research and innovation activities; the size of the research team; the costs associated with the proposed workplan; the resources required; the capacity of the research team to achieve the results; and the feedback to the PI provided through the Evaluation and Selection process. The negotiation on anticipated results will occur concurrently with the budget negotiation. In addition, a detailed implementation plan for the project must be prepared and approved.

VIII. Final Selection

The final selection of the grants will be made by Ignite Project Management & Appraisal Committee (PMAC)/ Board. In the final selection, the Ignite or PMAC/Board may deviate from the recommendations as a result of Desk review stage or Expert Panel Review as the case may be, without, however, changing any evaluation marks of the individual proposals.

It may do so based upon an objective and clearly stated rationale to ensure a reasonable geographical, priority and principal investigator representation in the final selection. In its selection, the Project Management & Appraisal Committee (PMAC) / Board must ensure that the portfolio of grantees address the major priority areas described in the Call for Proposals.

IX. Project Websites

Full details of the CIF will be available on the Ignite website available at: <http://www.ignite.org.pk>.

Updated project information will be available at the project website provided below:

<http://www.ignite.org.pk/CIF>.

Questions regarding the Challenge-driven Innovation Fund may be directed to: seedfund@ignite.org.pk.