

Call for Expressions of Interest:

**Managing Organization (Hub) for
Responsible Artificial Intelligence for
Agriculture and Food Systems Innovation
Research Network in Africa**

Date issued: March 29, 2021

Deadline for expressions of interest: May 3, 2021 (23:59 EST)

The International Development Research Centre (IDRC) and the Swedish International Development Agency (Sida) invite expressions of interest from individual organizations, or consortia of organizations to express interest in applying for a grant to play the role of the Innovation Research Hub for an African-based research network on responsible artificial intelligence innovations in agriculture and food systems. The Hub will design, develop, and manage the innovation research network as key part of the Artificial intelligence for Development in Africa program (AI4D Africa).

The call is open to individual organizations based in lower and lower-middle income countries (LLMIC) in sub-Saharan Africa (SSA) ¹ (see Annex I for list of eligible countries), or consortia of up to three organizations with the lead organization based in an LLMIC in SSA. This call for expressions of interest is not open to individuals or government ministries and agencies.

This call is part of the four-year [Artificial Intelligence for Development in Africa](#) (AI4D Africa) program dedicated to accelerating the realization of Africa's Artificial Intelligence (AI) innovations towards achieving continental, and global development goals. AI4D Africa partners with African AI communities to support the responsible, home-grown development and deployment of AI through investments in innovation, policy research, and capacity. For investments in innovation, AI4D Africa will support four, pan-African innovation research networks focused on climate change, agriculture and food systems, education, and gender/inclusion. This call is for a managing organization (henceforth the **Hub**) for the agriculture and food systems innovation research network.

¹ As per the World Bank official statistics: <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519>

The AI and agriculture Hub will be an interdisciplinary network designed to incubate (design, pilot, and evaluate) and then scale responsible AI4D innovations in the agriculture and food system sector. The selected Hub will design and implement an innovation research network of researchers and innovators applying responsible AI to advance sustainable agriculture and resilient food systems outcomes in Africa and participate in and contribute to the global movement on agriculture and AI. The selected organization will also be responsible for the following *indicative* and non-exhaustive set of activities:

Defining Artificial Intelligence

For this initiative, we use the [OECD definition](#) of an **Artificial Intelligence** system as a “machine-based system that can, for a given set of human-defined objectives, make predictions, recommendations, or decisions influencing real or virtual environments. AI systems are designed to operate with varying levels of autonomy.”

- Supporting the competitive selection of high-quality research projects from African innovators and researchers at the intersection of Artificial Intelligence, agriculture and sustainable food systems;
- Providing conceptual and technical support and guidance to the research network members as required such as ensuring responsible AI innovation development and deployment with a strong gender and inclusion considerations;
- Support the exchange of knowledge and good practices between network members;
- Building synergies and collaborate where appropriate with other AI and agriculture and food systems networks and communities; and
- Contributing to the strategic guidance of the AI4D Africa program.

Note that all innovation work supported will seek to be *responsible* and uphold the [Principles for Digital Development](#).

Responsible AI

While there is no one definition of responsible AI, there are various frameworks and definitions that focus on similar issues including ethics, transparency and accountability, guarding against biased data, maintenance of user trust and individual privacy, respecting individual's autonomy, etc. See, for example; [Responsible Innovation in Canada and Beyond](#), [the Responsible Innovation Framework: A Framework for Integrating Trust and Delight into Technology Innovation](#), and the [Montreal Declaration for Responsible AI](#).

We encourage all applicants to read the original [AI4D Program Proposal](#) ([English version](#), [version française](#)).

Artificial Intelligence for Agriculture and Food Systems

Artificial intelligence (AI) applications are profoundly impacting our world. AI is a set of technologies upon which applications are being built and applied in almost every domain of social and economic life. Fuelled by the increasing availability of computational power, improved connectivity, and data, AI offers innovative ways to promote human development by spurring new start-ups, adding value along the entire agricultural value chain including procurement, farm automation, and market access, enabling higher quality education systems, and tackling pressing health and climate challenges for many low- and middle-income countries in Africa. The resulting impact stands to be massive, if not revolutionary.

Applying AI to agriculture and food systems has the potential to contribute to the benefit of creating an Africa that is properly fed. It can do so through contributing innovation for more efficient, climate resilient and sustainable agricultural production and efficient food systems to enhance food security, incomes, and nutrition that benefit small-scale farmers (particularly women and the youth). Different AI applications can address some of the key challenge facing African agriculture such as the degradation of land, emerging pest resistance, reduction in soil fertility, increased vulnerability to global climate change, and a weak supply chain.² For example, AI powers affordable tools that can accurately identify diseases and monitoring the health of soil. The relative low-cost of these innovations means that they have to potential to be widely adopted across Africa.

Research on AI innovations is critical to be able to harness the benefits of AI for agricultural and food system at a significant scale. Such research can help to ensure that the innovations are responsible, effective, and scalable. Research can also help inform the scaling process as there are many important considerations when deciding whether to scale up or down the application of AI in the production, distribution, and consumption of food.

Approach

The general objective of this innovation research network is to contribute to improving agriculture and food systems in Africa through the responsible development and deployment of artificial intelligence innovations.

Specific objectives are to:

² See also: Artificial Intelligence for Africa: An opportunity for growth, development, and democratisation at https://www.up.ac.za/media/shared/7/ZP_Files/ai-for-africa.zp165664.pdf.

- (1) Deepen understanding of how to develop and scale sustainable African agriculture and food system AI innovations;
- (2) Build the capacity of African innovators and researchers to develop, deploy and scale such AI applications; and
- (3) Facilitate the contribution of African research to relevant international AI policy and practice conversations.

To achieve these objectives, the AI4D Africa program will support the implementation of an innovation research network, managed by the Hub, which will bring together (~6-10) African innovators and researchers working on or researching AI innovations that benefit agriculture and food systems through an open call. The selected innovators and researchers will receive funding and support for a research project of at least 18 months on their innovation. It is expected that the selected projects will represent linguistic, gender, and geographic diversity across Africa; diversity across relevant areas of application of AI to agriculture justice; and diversity of relevant involved stakeholders, e.g., university researchers, start-ups, research-oriented think-tanks, consultancies, labs. The Hub will play a critical role in establishing, managing, and supporting the innovation research network. Critical to this is the role of the hub in:

- Supporting researchers across the various geographies and in at least two languages (English and French), and to facilitate equitable engagement of women in research and leadership roles.
- Ensuring that each research project is multi-disciplinary, engaging researchers with different skillsets and expertise working together to advance new innovations (e.g., ensuring a combination of AI-related expertise, such as computer science, data science, and statistics; and agriculture related skills relating to value chains for small holders, financial services and mechanism, new or underutilized crops, and high-value animal products; and intersectional expertise in relevant frameworks such as rights and law, sociology, or gender studies.

The exact nature of the role of the Hub is not fully determined and the proposing organization(s) should provide information on how they propose to add value to the network to ensure that its outputs and outcomes are greater than the simple sum of the individual research projects.

The Hub will also play an important role as an AI4D Africa implementing organization. This includes working with other innovation research Hubs to find potential points of collaboration. For example, we anticipate the need for Hubs to collectively think about critical issues such as approaches to human rights and equity assessment of and scaling of AI innovations from early on the project cycle.³ The Hub is expected to participate in AI4D Africa strategic learning, monitoring and evaluation activities, helping to provide strategic direction to the program and maximize program synergies.

³ See for example the Responsible AI Design Assistant: <https://oproma.github.io/rai-trustindex/>

A key element of this process will involve the development of an African-led responsible artificial intelligence and agriculture and food systems innovation research agenda. By responsible, we are referring to AI innovations that are ethical, respect human rights, inclusive, and contribute to environmental sustainability.

Indicative Scope of Work for Network Hub

The following are *indicative* activities that *could* be performed by the Hub:

Set up and manage the network

- Establish research network's AI innovation in agriculture and food systems innovation and research agenda;
- Develop and run a call for proposals for AI for agriculture and food systems innovation research based on the innovation research agenda;
- Develop and manage a call review committee, made up of multi-disciplinary experts and ensuring equal engagement of men and women;
- Sub-grant to successful research teams to become members of the network and implement their innovation research projects (ensuring equity and participation of different researchers in projects);
- Manage sub-grants to winning institutions (henceforth sub-grantees), including sub-grantee monitoring and evaluation; and
- Interim and final technical and financial reporting to IDRC.

Support to network members

- Provide technical and methodological assistance to sub-grantees as required;
- Ensure network members engage in responsible AI practices and approaches – ensuring that interventions contribute to rights, inclusion, ethics and sustainability practices;
- Plan and run network workshops and other network support activities designed to collectively tackle common issues and/or facilitate cross-project collaboration where appropriate;
- Support network members in finding engagement opportunities with agriculture and food systems initiatives that may benefit from their research results and methods;
- Facilitate sub-grantee reporting;
- Connect sub-grantees to other resources (knowledge, financial) as required.

External engagement

- Coordinate with other African or international AI and agriculture networks of programs to engage in global and multi-disciplinary exchange, organize joint initiatives and events as

appropriate, and otherwise enable the impactful and responsible development of work at the intersection of agriculture and artificial intelligence.

Contributing to advancing knowledge and policy dialogues

- Produce a baseline scanning document of AI for agriculture and food systems innovations in Africa;
- Produce report(s) on the state of AI innovations in agriculture and food systems in Africa;
- Design a framework for facilitating the synthesis of lessons learned from across the different innovation projects supported by the network;
- Support uptake and scaling of research for policy or practice change;
- Require that all grantees openly release any data sets that are generated by the research project;
- Facilitate the production, communication and marketing of research outputs stemming from the network and ensure research publication in appropriate venues in accordance with [IDRC's Open Access Policy](#).

Contribute to the overall AI4D Africa program strategy

- Participate in the implementation steering committee of AI4D; and
- Participate in the AI4D Africa learning, monitoring, and evaluation activities.

Funding and Duration

AI4D Africa will allocate up to CA\$1.2 million to perform the duties of the Hub. The project can be up to 32 months in duration. For a consortium, IDRC will enter into a funding agreement only with the lead organization.

Eligibility

This call for expressions of interest is open to individual organizations or groups of organizations that:

- Have their headquarters based in lower and lower-middle income countries in Sub-Saharan Africa with preference given for organizations in low- and medium-income countries (see Annex I for complete list).
- Have a proven record of working in Africa and supporting the design, development, and scaling of agriculture and food systems, and AI innovations in these contexts.
- Internal expertise in AI and agriculture and food systems.
- Ability to work in both English and French at a minimum. Other languages a plus.

Transdisciplinary consortia are encouraged to apply. Consortia may consist of up to three (3) organizations. In case of a consortium, the expression of interest needs to provide a rationale explaining why the consortium has come together to implement this innovation research network and describe the role and added value provided by each member organization. Consortia must describe the governance and coordination arrangements they will use to produce high quality work and support fair and equitable partnerships.

NB: *This call for expressions of interest is not open to individuals or government ministries and agencies, but it is open to public research institutes and public university centers, labs and departments. It is also open to private sector actors.*

In case of a consortium application, individual members can be based in different countries and the non-leading members may be based in countries other than the list of Annex I. However, the leading member can only be based in an eligible country. IDRC will get into contractual agreement with the lead member only. The other members will be considered as subgrantees.

Expression of Interest Requirements

The applicant organization (or, in the case of consortium, the lead organization) should submit an expression of interest **of no more than 3,500 words** that clearly addresses the following:

- The organization's (or consortium's) interest in becoming the Hub and how this role aligns with their organizational mandate.
- The organization's (or consortium's) experience running innovation and/or research networks.
- The key areas where leveraging AI in support of agricultural and food systems innovations can bring the biggest benefit, and the challenges to achieving those benefits.
- How the organization engages in the agriculture and food system space and/or artificial intelligence/ data science for development.
- How the organization would build an innovation research network that (1) secures diverse participation across Africa, (2) supports responsible innovation, and (3) provides innovation and research support.
- How the organization will ensure gender equity and the inclusion of other marginalized groups research design, implementation, and outcomes.
- Experience with research synthesis and knowledge mobilization.
- The team composition and resources deemed necessary to successfully implement the network, including its evaluation and governance processes (in the case of

consortium, outline the roles each member would play, which organization would lead, how partners would coordinate equitable and effective partnerships).

- What major challenges the organization (or consortium) foresees in implementing the network and what actions it will take to address them.
- Indicative budget. We expect that a minimum 55% of the total budget goes towards network research projects.

In addition, please include:

- Contact information of the lead applicant and members of the consortium if applicable.
- Abridged CVs of the lead applicant with relevant experience and key contact individuals from other organizations in the case of the consortium (CVs should be no longer than two pages).

Evaluation Criteria

IDRC and Sida will consider the following criteria in the evaluation of expressions of interest:

Knowledge and expertise on agriculture, food systems, AI innovations, and research (20%)

- Demonstrated experience engaging in agricultural and food system research and innovations in Africa (expertise can be shared among different consortium members), or strong experience in one with proven track record of collaborations in the other domains;
- Experience and learning about scaling pathways in agricultural innovations, especially within Africa;
- Experience with machine learning or other AI applications to address pressing agriculture and food systems challenges in Africa;
- Connections with research and policy communities relating to agriculture and food systems.

Knowledge and expertise in supporting research and/or innovations networks (20%)

- Demonstrated experience running collaborative research activities and/or networks;
- Proven ability to support and guide researchers and technologists;
- Ability to facilitate knowledge exchange through participatory mechanisms both virtually and face-to-face;
- Experience managing calls for proposals processes.

Innovation research network plan (20%)

- Logical network plan that funds and supports responsible AI for agriculture and food systems innovations;
- Approach ensures inclusion and equity of both genders and other vulnerable groups;
- High impact knowledge synthesis and sharing activities;
- Reasonable and feasible budget.

Expertise in synthesis, learning facilitation, and knowledge mobilization (15%)

- Ability to facilitate cross-grantee learning and synthesis;
- Experience in designing and developing products that support knowledge sharing and use: high quality practitioner-oriented outputs, toolkits, rapid knowledge syntheses, supporting resources, and policy briefs;
- Experience in knowledge mobilization for policy and practice improvement.

Organizational performance (20%)

- Evidence that the organization has the basic systems, resources, and management capacities to succeed in setting up and running a Pan African research network. Capacity to work in English and French (other languages would be an asset).

Organizational motivation (5%)

- Evidence that the organization's programmatic strategy, institutional mandate, and previous experience align with and are relevant to the role of the Hub.

Submission and Review Process

The expression of interest and all requested supporting materials must be consolidated into one PDF/Word document and sent by email to AI4DAfrica@idrc.ca, with a timestamp **no later than 23:59 EDT on May 3, 2021**. Please use the follow subject when submitting your EOI: *Name of the lead institution – Agriculture innovation research network*.

The review process will consist of the following steps:

- (1) Verification of eligibility requirements and expression of interest completeness: IDRC will review all submitted expressions of interest to ensure they meet eligibility requirements and all necessary materials. Incomplete expressions of interest or those that do not meet the requirements will not be considered further.

- (2) Review and ranking of expressions of interest: IDRC staff will review eligible expressions of interest using the evaluation criteria. Each expression of interest will be reviewed by at least two reviewers. Expressions of interest will be ranked based on scoring and subsequent IDRC discussion.
- (3) Shortlisting expressions of interest: On the basis of scoring and internal discussion, IDRC will shortlist high-quality expressions of interest and will invite them to submit a full proposal. The full proposals will be assessed by an external expert review panel, who will recommend a shortlist to IDRC and Sida.
- (4) Proposal feedback will only be provided to those that are requested to submit a full proposal.

Call Timeline

Activity	Date
Expression of interest release date	March 29
Deadline for submission of questions	April 14
Answers to questions posted	April 16
Submission deadline	May 3
Selected Eols invited to submit proposals	May 18
Submission of proposals	June 18
Final selection	July 1

Inquiries

If you have any questions about this call for expressions of interest, please contact IDRC at AI4DAfrica@idrc.ca. Any inquiries that affect all applicants will be posted anonymously online when the answers to questions are posted. Applicants are strongly encouraged to monitor this website (ai4d.ai) for any updates regarding the call.

Annex I. List of eligible countries

This lead organization must be headquartered in a low and lower-middle income countries in sub-Saharan Africa, as per the country classification of the World Bank⁴. Eligible countries include the following:

Angola	Malawi
Benin	Mali
Burkina Faso	Mauritania
Burundi	Mozambique
Cameroon	Niger
Central African Republic	Nigeria
Chad	Rwanda
Comoros	Senegal
Congo, Rep	Sierra Leone
Côte d'Ivoire	Somalia
Democratic Republic of the Congo	South Sudan
Djibouti	Sudan
Eritrea	Tanzania
Eswatini	The Gambia
Ethiopia	Togo
Ghana	Uganda
Guinea	Zambia
Guinea-Bissau	Zimbabwe
Kenya	
Lesotho	
Liberia	
Madagascar	

The following SSA countries **are not** eligible for this call:

- Botswana
- Equatorial Guinea
- Gabon
- Namibia
- South Africa
- Seychelles

⁴ <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519>