COVID-19 Global South Artificial Intelligence (AI) and Data Innovation Fund – Sida and IDRC

Scope and focus of this call

IDRC (International Development Research Centre) and Sida are inviting you to submit a grant proposal to contribute to the rapid deployment of AI and data science for COVID-19 response in developing country contexts, and to support building capacity, learning and resilience within those contexts for longer term pandemic response.

Grants of up to CAD 1,000,000 will be provided. Individual organizations from the Global South may apply, but preference will be given to consortia of actors (which may include partners in the Global North) that demonstrate an ability to work across different geographic contexts, disciplines and directly with governments. In the case of consortia, it is an asset if the primary recipient is an institution in the Global South. In other scenarios, partners in the Global South should make up a majority of the implementing partners.

Support shall be directed to the following types of interventions within the thematic areas:

- Primarily, to innovations and research focused on using AI and data science techniques for with a focus on ensuring immediate uptake by governments and community health practitioners in the developing world. Preferably these solution-focused interventions would also respond to longer-term response, recovery, and preparedness activities.
- To policy interventions and research to focus on the related challenges of mobilizing technology and AI solutions related to the pandemic, including misinformation, governance and trust, oversight and transparency, digital rights and data sharing for pandemic response. Addressing challenges related to the Ethical, Legal, and Socio-Economic Implications of rapid response innovations and their implementation are of particular importance.

Thematic areas

We are seeking proposals that address at least one of the following thematic areas. Recognizing that these themes are often related, multiple themes may be addressed.

**Forecasting transmissions and reducing spread through policy and public health interventions:** AI and data science innovations have been used in several areas of epidemiological research, including forecasting the number of new confirmed cases given different public policy choices and modelling the rate of asymptomatic cases. Models can help predict the location, timing and the size of outbreaks, allowing governments to allocate resources more effectively. In terms of public health management, AI models also enable policymakers and health officials to conduct scenario and signal analysis that will enhance their capacity to make effective data-driven decisions about responses in current and future outbreaks.

Many of these approaches are still relatively novel. It is important to ensure interdisciplinary teams include strong epidemiological and biomedical expertise, and oversight mechanisms are in place to safeguard decision making and data collection, check assumptions in modelling, and ensure the veracity, reliability, and accountability of these tools to address bias and other potential harms. There is also an opportunity to contribute to building capacity in the field of Precision Public Health.

**Questions to consider include:** What are effective approaches to rapidly adapt existing epidemiological techniques and data science approaches to data-scarce contexts in low and middle-
income countries? What novel techniques and approaches can be deployed to support contact tracing, forecasting and scenario planning? What approaches are needed to ensure uptake and action on these models by decision-makers and the public? What techniques and approaches can be used to account for gender differences and other characteristics of vulnerable groups to ensure their needs are addressed? What approaches could be adopted in the longer term to support the field of precision public health – robust primary surveillance data, rapid application of sophisticated analytics to track the geographical distribution of disease – and the capacity to act on such information? What are the approaches needed to ensure these methodologies and applications are gender-sensitive, consider the socio-economic and political contexts, and address needs equitably and responsibly? What mechanisms are in place to ensure the accuracy, validity and veracity of new models?

**Optimizing public health system responses for patient diagnosis, care and management:** Digital, data, and AI solutions can help to support overburdened health systems and health workers when responsibly deployed. Automated systems can contribute to better logistics and resource allocation, help health officials plan who to test, and estimate the number of patients in a location and coordinate needed beds, equipment and treatment options based on availabilities. They can be used to communicate timely information, support self-diagnosis, and communicate initial recommended treatment options. However, these systems can be challenging to implement due to lack of interoperability within data systems, and also address challenges relating to incorporating novel approaches to diagnosis like at-home diagnostic kits.

**Questions to consider include:** How can AI and Data Science solutions be deployed in low resource settings to support and augment the essential efforts of frontline health workers and help health systems in improving uptake of positive behaviours, clinical practice and patient care? What existing or novel data science techniques can be used to support rapid diagnosis (such as X-rays) and improve testing efficiency that is suitable for low and middle-income contexts? How can AI and data science tools, including chatbots, be used to support better communications about COVID-19 treatment options, self-diagnosis and care? How can these tools be gender-equitable and take differential gender needs into consideration?

**Building trust and combatting mis- and dis-information around COVID-19:** The COVID-19 “infodemic” has resulted in the widespread dissemination of unfounded or false medical advice, hoaxes, fake products and fake information about the virus and responses.

Questions to consider include: What is the scope of the problem and the kinds of misinformation and disinformation being spread in developing country contexts and their results? How can data science and AI techniques, in combination with other processes, be leveraged to track and counter misinformation related to COVID-19 in developing country contexts? How can data and AI techniques help to disseminate reliable public health information? What approaches can help to improve trust in public health activities, for example, through increased transparency and accountability about COVID-19 information and measures? What stakeholders, such as journalists, should also be engaged in misinformation efforts?

**Strengthening data systems and information sharing about COVID-19:** A key challenge in optimizing public health responses and implementing AI and data science innovations in response to the COVID-19 crisis are weak systems to collect quality, timely, disaggregated data related to the crisis that can be used by governments, epidemiologists and data scientists to develop useful, meaningful solutions. Many different kinds of data, coming from a variety of sources, are needed to coordinate and implement, to support decision-making, and to drive modelling. Historical underfunding of health systems, and a lack of interoperability, standards and sharing of data between different levels (local, regional, national, and internationally) can make it challenging to track cases, understand health system capacity, and support modelling efforts. Beyond health system and administrative data, other data sources such as social media data, mobile phone data, and satellite data, and citizen-
generated data can help address challenges, often in near-real time, but may pose other challenges around data governance.

**Questions to consider include:** What approaches, techniques and standards can help to rapidly share and manage data from a variety of sources for use to support rapid COVID-19 data science and AI responses? How to strengthen sharing and opening of pandemic related data, with privacy by design? What sharing arrangements, such as data trusts and collaboratives, can be used to responsibly pool and share potentially sensitive data from governments, academia, the private sector, citizen-generated data and other sources such as citizen-generated data? What approaches can address data gaps around vulnerable populations in responsible ways? What approaches can help mitigate bias in data sets?

**Supporting transparent and responsible AI and data governance around COVID-19 and pandemic responses:** There are many ethical, legal and socio-economic implications in supporting rapid response innovations in developing countries. Extensive health surveillance is playing a significant part in many COVID-19 responses, and there is a need to sunset exceptional measures, so they don’t become the norm. Finally, there is a need to ensure that approaches to data and AI governance in pandemic situations are reflective of the perspectives, needs and expertise of the global south.

**Questions to consider include:** What approaches are needed to accompany research, innovation and policy measures that take into account rights, governance and oversight, explainability, privacy, consent, algorithmic bias, technical accuracy, security, transparency, scalability, future usage, data collection, identification and pseudo-anonymization techniques (among others)? In countries that may not have strong legal frameworks on data protection and privacy, what design approaches support the implementation of appropriate safeguards, restrictions, ethics and modalities for public oversight for rapid response innovations? What approaches, practices or techniques can help to understand the balance of individual rights with collective rights in public health emergency situations and how to address and sunset any exceptional measures? How to ensure that particularly vulnerable and marginalized communities play a strong role in the design and oversight of technologies that may implicate (and sometimes benefit) them?

**Mobilizing AI and data science to support gender and inclusion needs during the crisis:** Providing baseline disaggregated data about COVID-19 infection and mortality rates is a necessary start to a more complex and vital issue.

**Questions to consider include:** How can data science and innovation, in combination with other practices, understand the differential impacts of gender on the crisis? What data science innovations, approaches and techniques can be leveraged to help meet the immediate needs of women and other vulnerable groups such as LGBTQ+ communities, migrants, and indigenous communities during the crisis? What existing or novel approaches could data science and AI tools undertake to support (basic) psychosocial care for people in crisis during a time of social distancing, for example, women and other groups experiencing increased instances of GBV and front-line health care workers? In the longer term, how can these tools contribute to more equitable health systems? How can leadership be more equal and equitable, and how can data science and AI tools help to amplify more inclusive public health and policy leadership in pandemic responses?

Other considerations include:

- Funds may be directed to support new initiatives or to build on and expand existing research, responses and implementation. Proposals should demonstrate strong linkages to how this research will support sub-national/urban, national, or multi-national pandemic responses.
- Proposals may choose to focus on a rapid response, but will preferably also address longer-term challenges as well – ensuring whatever intervention is proposed could be available for additional waves of COVID-19 and other pandemics.
• Proposals should be designed for scale. Highly resourced pilots often fail to make the transition to the systems approach required to scale. The likelihood that an innovation will have impact at broader scale is increased when strategies for scaling are incorporated from the outset.

• All proposals will be required to include gender considerations, and to discuss responsible (ethical, inclusive, rights-based and sustainable) approaches to implementation, governance and oversight of the planned interventions.

What we are not funding
- Research and innovations that have a theoretical application, but not a practical one. The focus should be on research and innovations that could be immediately applied and useful to governments or actors responding to the pandemic;
- Vaccine and drug discovery and trials;
- Protein mapping and other molecular science;
- Research on social and economic policy issues beyond those articulated in this call relating to COVID-19 and post-COVID response;
- Research and innovations that are impossible to implement in conditions where countries have policies for physical distancing. As such, the proposal needs to demonstrate clearly how it can be implemented in the current circumstances of physical distancing.
- Commercial applications and innovations.