

**REQUEST FOR APPLICATIONS: INNOVATION RESEARCH FOR HOMEGROWN
ARTIFICIAL INTELLIGENCE APPLICATIONS AIMED AT IMPROVING MATERNAL,
SEXUAL AND REPRODUCTIVE HEALTH AND RIGHTS IN SUB-SAHARAN AFRICA**

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1. SUMMARY OF THE CALL

DATE OF ISSUE: 22nd June 2022

DEADLINE FOR APPLICATIONS: 12th AUGUST 2022 (23:59 EAT)

This guidance is for applicants wishing to apply to the [Hub for Artificial Intelligence in Maternal, Sexual and Reproductive Health](#) in response to the Request for Applications (RFA) for Artificial Intelligence (AI) innovations in Maternal, Sexual and Reproductive Health (MSRH). In particular, this call is for innovations and/or research projects that provide solutions in the theme areas of **Maternal Health, Sexually Transmitted Infections (STIs), Adolescent Sexual Reproductive Health and HIV**. Overall, applicants will choose either a Research or Innovation track. Ethical, rights respecting and sustainable AI, gender equality and inclusion are cross cutting principles.

The call is open to students and start-up organisations less than 5 years old in Sub-Saharan Africa (SSA), or to established organisations including academic institutions and companies older than 5 years old in SSA. Women, youth and people from underrepresented groups are strongly encouraged to apply.

The goal of this initiative is to advance the effective deployment, and integration of responsible Artificial Intelligence to improve maternal, sexual and reproductive health, particularly for vulnerable populations, in Sub-Saharan Africa.

The available funding is \$10,000 - \$15,000 for students and start-up organisations and \$30,000 - \$40,000 for established organisations, for a period of up to 18 months.

2. BACKGROUND

The Hub for Artificial Intelligence in Maternal and Sexual reproductive Health (HASH)

The [Academy for Health Innovation Uganda](#) (at the [Infectious Diseases Institute](#)), [Sunbird AI](#) and the [Makerere University AI lab](#) have formed a multi-disciplinary consortium through funding from the [International Development Research Centre](#) (IDRC) and the [Swedish International Development Cooperation Agency](#) (Sida) as part of the [Artificial Intelligence for Development in Africa Program](#) (AI4D Africa). The consortium will implement an African Artificial Intelligence (AI) hub for Maternal, Sexual and Reproductive Health (MSRH). The hub is titled Hub for Artificial Intelligence in Maternal, Sexual and Reproductive Health ([HASH](#)).

The HASH Consortium aims to establish a Hub of pan-African anglophone and francophone students and organisations through funding different innovators through competitive sub-

awards, targeting novel research and innovations in AI for MSRH. HASH will support the innovators to research and validate their ideas in key thematic areas of Maternal Health, Sexually Transmitted Infections (STIs), Adolescent Sexual Reproductive Health and HIV, as well as providing mentorship and collaborative opportunities. Health equity and attention to vulnerable and marginalized populations by sex, gender, age, and other intersecting vulnerabilities are strongly valued. These thematic areas are the basis of this Request for Applications.

The overall objective of the Hub is to advance Maternal, Sexual, and Reproductive health and rights while strengthening health systems in sub-Saharan Africa (SSA) through the responsible development and deployment of equitable Artificial Intelligence (AI) innovations.

The Health Issue

The World Health Organisation (WHO) estimates that poor reproductive health outcomes accounts for up to 18% of the global burden of disease, and 32% of the total burden of disease for adolescent girls and women of reproductive age. (1) In Sub-Saharan Africa, death and disability resulting from reproductive health causes remain unacceptably high. Adolescent girls and the least educated and wealthy women and girls, and those who are rural-based are among the most vulnerable. The adult lifetime risk of maternal death has been estimated to be highest in Africa (1 in 26), while developed countries have been estimated to have the smallest lifetime risk (1 in 7,300). (1) The prevention and control of reproductive tract infections is another area of concern; (2) for example, Congenital Syphilis is the second leading cause of preventable stillbirth globally, preceded only by malaria. (3) Evidence shows that adolescents aged 15-19 years of age in Africa, and particularly adolescent girls, continue to be more susceptible to STIs, HIV, unwanted pregnancies and unsafe abortions. (4)(5) Unequal gender norms and power relations that limit women and girls' decision-making power are among the driving factors. There were approximately 37.9 million people living with HIV at the end of 2018 with 25.7 million people (67.8%) coming from Africa. (6) In 2021, adolescent girls and young women (aged 15 to 24 years) accounted for 25% of new HIV infections as compared to only 8% among their male counterparts. The interplay of gender in maternal, sexual and reproductive health (MSRH) issues is complex. Whilst the burden of disease sits mainly on women, men have poor health seeking behaviour in large part due to harmful masculinities that deter male engagement in maternal care, despite being equally responsible for pregnancies and sexually transmitted infections. (7)

Therefore, based on research justification, the thematic priority areas for the HASH project will be Maternal Health, Adolescent Sexual Reproductive Health, Sexually Transmitted Infections (STIs) and HIV, particularly of the most vulnerable women, men, girls and boys and gender diverse people. Gender equality and inclusion are cross-cutting themes.

The opportunity for Artificial Intelligence

Recently, there has been an explosion in available health data in Africa due to improved infrastructure for electricity and internet, as well as the widespread adoption of digital health technologies in the Fourth Industrial Revolution. (8) This provides a huge opportunity for data driven strategies and innovations to be utilised as a tool for health promotion and equitable service-access. Yet, if digital health is blind to gender and social exclusionary relations, there is risk of worsening existing inequalities in digital access. (9) There is currently limited research capacity to make use of this valuable resource for improving health outcomes for all. This research Hub will focus on harnessing this opportunity by establishing a critical network of enthusiasts, researchers and organisations working in the AI for MRSH space.

The Purpose

We aim to gain insight into the usage of new and existing data and how AI and data technology can be leveraged to solve African health challenges responsibly and equitably, and increase impact in the four key areas of Maternal Health, Adolescent Sexual Reproductive Health, Sexually Transmitted Infections (STIs) and HIV. We plan to not only promote research in AI for MSRHR, but also to develop data products that inform decision making in the local context of Africa, and that respond to **local** needs, are community-relevant and gender-responsive.

3. GRANT STRUCTURE AND FUNDING CONDITIONS

a. Eligibility

We intend to fund up to 8 research projects for a grant term maximum of 18 months. We encourage applications from both students and start-up organisations (under five years in operation) as well as established organisations (over five years in operation). We welcome applications from Academic organisations, Non-governmental organisations and private sector organisations.

Applicants or partnerships with women researchers and or male and female youth and or organisations representing targeted impact groups are strongly encouraged to apply.

i. Eligible Countries

The Lead Applicants must come from any of the **Sub-Saharan African countries**. These include; Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central

African Republic, Chad, Comoros, Congo (Brazzaville), Congo (Democratic Republic), Côte d'Ivoire, Djibouti, Equatorial Guinea, Eritrea, Ethiopia, Gabon, The Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Réunion, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, Sudan, Swaziland, Tanzania, Togo, Uganda, Western Sahara, Zambia and Zimbabwe.

ii. Start-up organizations or Students

Start-up organisations with less than or equal to five years in operation and registered Masters or PhD Students are encouraged to apply. They will be eligible for grants of \$10,000 - \$15,000 USD.

Students will need to have an academic mentor in the field of Artificial Intelligence and/or any of the four themes (STIs, HIV, maternal health or Adolescent Sexual Reproductive Health) working at a recognised academic institution in the Sub-Saharan African countries listed above.

iii. Established Organisations

This call is also targeting registered organisations (more than five years in operation), academic institutions, research hubs, researchers, academic, private and Non-Governmental Organisations. These are encouraged to apply for grants of \$30,000 - \$40,000.

All organisations must be registered and based in a sub-Saharan African country and the research must be for the benefit of African populations. We strongly encourage women-led start-ups and applicants that include representation of vulnerable populations.

b. Application tracks

i. Research Track

This track entails the investigation of a new AI idea/concept/initiative in the form of exploration, building, testing etc. This track could possibly produce research publications as an output. However, other relevant outputs as suggested by the applicant are also welcome.

ii. Innovation Track

This track entails the use of applied research where a prototype/application/concept already exists and requires advancement in some way e.g. scale up or application to a

new population/environment etc. This track may, among many other possibilities, produce a system as an output.

c. Conflict of interest in the RFA

Employees of the Infectious Diseases Institute, Sunbird AI and Makerere AI Lab, whether part-time or full-time are not eligible to apply.

4. SCOPE OF THE CALL

HASH intends to fund different innovators, targeting novel research and innovation ideas for the use of AI as a solution to challenges in MSRH in Sub-Saharan Africa (SSA). The hub will then support the innovators to research and validate their ideas in key thematic areas of Maternal Health, Sexually Transmitted Infections (STIs), Adolescent Sexual Reproductive Health and HIV. These four thematic areas will form the basis for the call.

a. Theme 1: Maternal Health

We invite applications using Artificial Intelligence, Machine Learning, Natural Language Processing (NLP) to support surveillance, diagnosis, treatment or health information collection and dissemination for Maternal Health (MH) in sub-Saharan Africa. This could be based upon one reproductive disease (e.g. pre-eclampsia), one population (e.g. teenage mothers) or one maternal program, e.g. maternal communication. We encourage use of heterogeneous data sources and consideration of intersecting factors - biological, socio-cultural, politico-economic and environmental - that create differentiation in risks, exposures, vulnerabilities and outcomes.

Innovation and Research areas that may be funded will include, but not limited to:

- AI or ML-enabled identification of sub-populations vulnerable to poor MH outcomes.
- Predictive modelling of MH epidemiology e.g. factors that drive teen motherhood within communities.
- AI-enabled analysis of social and traditional media for MH information and misinformation.
- Analysis of health records to understand social behaviours and practices of significance to MH.
- AI-supported understanding of MH pharmaceutical practice. Fidelity of mothers to prescriptions.
- Automated information systems to support the collection and dissemination of information critical to MH.
- Machine Translation systems related to Maternal, Sexual and Reproductive Health.

- AI-enabled health promotion leveraging gender responsive strategies such as women and girls' empowerment, male engagement and/or family-centred engagement.

These topics are for guidance only and other research ideas fitting the project brief will be considered. Applications must demonstrate use of responsible AI and gender and inclusion considerations in development, deployment and results.

b. Theme 2: Sexually Transmitted Infections

We invite applications using Artificial Intelligence, Machine Learning, Natural Language Processing to support surveillance, diagnosis, treatment or health information dissemination for Sexually Transmitted Infections (STIs) in sub-Saharan Africa. This could be based upon one infection area (e.g. Neisseria gonorrhoea), one population (e.g. teenage girls) or one presentation of infections (e.g. genital ulcer disease). HASH encourages paying attention to diversity and inequities within one population due to intersecting vulnerabilities by gender, sexuality, age, class, race, ethnicity, citizenship status, religion, and ability.

Research topics that we are looking to fund include, but are not limited to, the following areas;

- Predictive modelling of STI epidemiology using data disaggregated by gender as well as other socio-demographic indices
- Analysis of social and traditional media for STI information and misinformation
- Strategies to predict and monitor antimicrobial resistance in STIs
- Analysis of health records to understand antimicrobial resistance patterns
- Analysis of maternal health and HIV records to determine those at risk for STIs to target for prevention using data disaggregated by gender as well as other socio-demographic indices
- Chatbot and other automated information systems to support health care workers or other populations (e.g. young people) with information on STIs.

These topics are for guidance only and other research ideas fitting the project brief will be considered. Applications must demonstrate use of responsible AI and gender and inclusion considerations in development, deployment and results.

c. Theme 3: Adolescent Sexual Reproductive Health

This theme focuses on the sexual and reproductive health of adolescent girls and boys and young women and men (15-24 years), particularly Adolescent Girls and Young Women (AGYW)

in Africa as they continue to be more susceptible to STIs, HIV, unwanted pregnancies, and unsafe abortions. This project seeks proposals aiming at the use of AI and machine learning in the implementation of one or more activities that will lead to real and practical changes in order to improve the health of adolescent girls and boys and young women and men. Proposals should identify clearly the health issues and/or risk factors to be addressed and describe the pathway(s) for how the proposed approach will be incorporated into AI/machine learning systems to reach scale and lead to improved and gender equitable health outcomes.

Research topics that we are looking to fund include, but are not limited to, the following areas;

- Diagnosis of sexual and reproductive health diseases for the targeted adolescent girls and boys and young women and men and gender diverse youth.
- Chatbots to listen to patients' symptoms and health concerns and then guide patients (male, female, gender diverse, by age sets) to the correct care based on diagnosis.
- Algorithms that analyse unstructured medical data related to reproductive health (radiology images, blood tests, genomics, patient medical history) to give doctors better insight into a patient's real-time needs.
- Strategies to improve health-seeking behaviour, and access to and use of, comprehensive family planning services for adolescent girls and boys (10-14, and 15-19 years of age).
- Analysis of gendered, social and traditional media for Adolescent Sexual Reproductive health information and misinformation disaggregated by sex and age.

The proposed topics are for guidance only and other research ideas fitting the project brief will be considered. Applications must demonstrate use of responsible AI and gender and inclusion considerations in development, deployment and results.

d. Theme 4: HIV

The recent advances in HIV care and treatment have modified the need for innovations in care and management of persons living with HIV. With many countries achieving or close to achieving the UN targets, policy makers are interested in innovative products and strategies that will ensure that all persons (male, female, gender diverse) know their HIV status, are linked, initiated and retained in HIV care. Challenges and gaps are deeply gendered: most young women in sub-Saharan Africa do not have comprehensive knowledge of HIV and men are less likely to be tested for HIV than their female counterparts are. Key populations such as men who have sex with men or sex workers are criminalised for their identities and face stigmatisation at points of care. In this theme, the funding will be awarded to teams that provide solutions to challenges in HIV care and treatment including attention to gender and health equity.

Research topics that we are looking to fund include, but are not limited to, the following areas;

- Prediction of persons at high risk of HIV infection by data disaggregated by gender as well as other socio-demographic indices
- Innovations that support identification of high-risk persons and their linkage to PrEP services using data disaggregated by gender as well as other socio-demographic indices and considering those most vulnerable due to their age, gender, sexual orientation or other factors
- Innovations for retention in PrEP and ART care services
- Solutions to address poor adherence among PLHIV diagnosed with non-communicable diseases e.g. hypertension, Diabetes, etc. using data disaggregated by gender as well as other socio-demographic indices
- Chatbots to listen to patients' symptoms and health concerns of PLHIV and NCDs and then guides patients to the correct and personalised care based on diagnosis
- Algorithms that analyse unstructured medical data (radiology images, blood tests, EKGs, genomics, patient medical history) to give HIV care providers better insight into a patient's real-time needs.
- Machine learning tools to predict loss-to-follow up among PLHIV by data disaggregated by gender as well as other socio-demographic indices
- Algorithms that detect persons at risk of severe outcomes from new ART regimens e.g. Dolutegravir

The proposed topics are for guidance only and other research ideas fitting the project brief will be considered. Applications must demonstrate use of responsible AI and gender and inclusion considerations in development, deployment and results.

5. Data Access

a. Participant datasets

Applicants shall be expected to propose datasets that they will use for their projects. Such data may be independently sourced by the applicants from either ongoing projects or collaborations they may be affiliated with, or may be actively collected during the lifetime of the project, or may be computationally simulated. Such data, if it includes personally identifiable data, should be de-identified and consented or in the process of being consented. As much as possible, all data should be disaggregated by sex, gender, age and other intersecting identities to offer more precise and granular information while ensuring a do no harm approach.

b. HASH datasets

Where applicable, applicants might be provided datasets by the HASH consortium. Such data may be sourced from ongoing or previous projects that HASH affiliate entities like IDI and the Makerere AI Lab have, encapsulating records such as HIV patient data, unstructured data, maternal and child health data, radio data etc. Please contact the Project Co-ordinator Dr Mackline, at hashproject@idi.co.ug if you are interested in pursuing this possibility. As open source data sets (e.g. [Lacuna Fund](#)) become available these will be detailed on our [website](#) and we suggest that you check here first before contacting Dr Mackline.

c. Public data

Participants are free to propose projects based on publicly available data. Such data may include national public health databases e.g. HMIS, DHIS2, PHIA, DHS etc. from the country's Ministries of Health or other statistical bodies. Additionally, participants can also propose projects based on other electronic sources such as the internet e.g. NCBI, Satellite data, mobility data, communication data, behavioural data etc. We would encourage use of data sets that can be disaggregated by gender and other socio-economic factors contributing to vulnerability.

d. Data storage and access policy

Participants will be free to either identify platforms for the storage and processing of their project's data or to request for storage and computational support from the HASH consortium. For the latter, the HASH consortium will guarantee security and exclusive access to the data for only the specific applicant on the consortium's platforms. However, applicants will also be strongly encouraged, where applicable, to share their data under the Findable, Accessible, Interoperable and Reproducible ([FAIR](#)) principles. The meta data accompanying the data should be made clear and support data sharing. For example, applicants should note that the HASH consortium may, from time to time, request access to their project data for either review, audit or project advice or for data enrichment by other datasets it may be aware of.

Participants using HASH consortium datasets will be required to follow the access related requirements that will come with each dataset, and sign a data sharing agreement with the consortium.

6. RESPONSIBLE AI

This call is heavily intent on ensuring that the studies conducted with this funding make a deliberate effort to take a responsible approach to the research and development of AI

applications. To be considered responsible therefore, the innovations being developed and deployed by hub members must be ethical, inclusive, rights-respecting, and sustainable. The applicants (and any collaborating organisations) must demonstrate commitment to incorporate and promote Responsible AI, inclusion and Gender-sensitive principles.

a. Key terms:

- i. Gender: Gender refers to the socially-constructed roles, responsibilities and relationships that society considers appropriate for women and men—it also has implications therefore for individuals and groups who identify as gender non-conforming (gender diversity). Gender is upheld by political, economic, social, and cultural institutions. Gender is context and time-specific, and thus changeable as well.
- ii. Sex: The sum of biological and physiological characteristics that typically define men and women, such as reproductive organs, hormonal make-up, chromosomal patterns, hair-growth patterns, distribution of muscle and fat, body shape and skeletal structure.
- iii. Intersectionality: The cumulative way in which the effects of multiple forms of discrimination (including but not limited to racism, sexism, and classism) combine, overlap, or intersect.
- iv. Inclusion: The aim of inclusion is to embrace all people irrespective of race, gender, disability, medical or other need. It is about giving equal access and opportunities and getting rid of discrimination and intolerance (removal of barriers). It affects all aspects of public life.

b. Gender, Equality and Inclusion in AI

Applicants must clearly define how gender equality and inclusion considerations will be integrated into the design, implementation and results of the project. This will include the following: consider the context of their target population during the proposal development stage; and identify what opportunities and what challenges affect their target population; describe how the project will navigate these to remove barriers to inclusion.

The application is required to define: how the study design will address intersectional issues that women, adolescent girls, and other marginalised groups experience; positive and potentially unintended impacts of the proposed technologies, innovations and programmes on men, women, boys, girls and gender diverse people and what actions will be taken to mitigate the negative consequences thereof, enhance inclusion and contribute to positive outcomes for gender equality and inclusion. Where relevant, the applicant must define local partners and how impacted communities will be engaged across the research process to participate and influence project decision making and deployment.

Research shows that increased male involvement has benefits for maternal, sexual and reproductive health outcomes when gender power dynamics are identified and fully

considered. (10)(11) Therefore, applications for AI innovations that promote participation of men/male involvement or that take a family approach with consideration of gender dynamics in digital health, are highly encouraged.

In the research team, define who will ensure gender equality and inclusion are considered. Consider a representative from a local gender equality or women's rights organisation or underrepresented groups.

c. Ethics

All research that includes human subjects must ensure that their privacy, dignity, and integrity are protected. An independent ethical review committee must approve the research. For students and start-ups, inclusion of an academic mentor is needed to support the ethics process. All applicants will need to get national level ethical or human subjects' clearance before starting their project. As this process can at times be protracted and the project is short, those applications with data sets with existing or in progress ethical approval will be prioritised for funding. All teams receiving funding will need to ensure that they undertake a Good Clinical Practice or Human Subjects Protection training. Studies that will collect corporate or personal information must detail how informed consent will be obtained, how collected data will be governed and confidentiality maintained. Most importantly, the research teams must provide details on how participants' confidentiality will be achieved while using their information during development of the specific innovations.

d. Relevant resources for responsible AI:

[Technical Brief 1: Designing gender-responsive data projects: Synthesis of key frameworks and guidelines \(covidsouth.ai\)](#)

[Technical Brief 2: A guide for more gender-responsive health research \(Ladysmith\) \(covidsouth.ai\)](#)

[Technical Brief 3: Stakeholder engagement for gender-responsive health research \(Ladysmith\) \(covidsouth.ai\)](#)

[Ethical funding for trustworthy AI: proposals to address the responsibilities of funders to ensure that projects adhere to trustworthy AI practice | SpringerLink](#)

[Transforming Gender Relations: Insights from IDRC Research by IDRC | CRDI - Issuu](#)

[Gender transformative approaches - CGIAR](#)

[The potential and unknowns of gender transformative approaches \(ifad.org\)](#)

7. BUDGET AMOUNTS AND FUNDING CONDITIONS

Applicants must submit an itemized, line-item budget and narrative with any staffing breakdown (i.e., name, position title, and annual salary, percentage of time and effort, and amount requested) and justification for all other requested costs.

- Organisational overheads can be included, but should be justified in the narrative and should not exceed 13%.
- Capital costs can be included but must not exceed 10% of the overall budget.
- Ethical approvals should be costed; these may need to be run through the academic mentor for start-ups and individuals and so should be adequately costed.
- One trip to Uganda for training in November/ December 2022 should be budgeted (including air ticket (economy class), visa and out of pocket expenses. This should be approximately \$1000 (but no more than \$1500 USD) per person. For organisations two persons (one researcher, one grants or admin team) should attend, for start-ups one person should attend. Subsistence, accommodation and local travel will be provided by the HASH team in Uganda.
- Applicants will also budget \$500-\$1000 for communication costs. This will cater for good quality photos and videos that will be used to showcase their work.
- For students and start-ups, the maximum grant amount is \$10,000 - \$15,000. For organisations older than 5 years the maximum grant amount is \$30,000 - \$40,000.

8. GUIDANCE ON HOW TO APPLY

All proposals must be submitted electronically by 12th August 2022 at 23:59hrs EAT (Nairobi). Proposals received after the submission deadline will not be considered.

All applications to this call MUST be submitted electronically through the Link: [APPLY](#)

Please note that the French version of the electronic submission form will not be available until early July. If applicants require any further information and support on this, please contact hashproject@idi.co.ug.

Please refer to the following guidelines as you prepare your application to the RFA. Applicants are invited to submit a full proposal that follows the following outline:

Section 1: Contact information

Please provide the contact information of the organization. For Students, please provide the contact information of the applicant and of the Academic mentor.

Section 2: Project Summary

- a. Study title
- b. Track applied for
- c. Theme area applied for
- d. Type of Applicant (Student/Start-up or Established organization)
- e. Abstract

Please provide a short abstract of the project, which should not exceed 300 words. It should be written clearly for a non-technical audience. It may be used on our website if the project is funded. Avoid acronyms and technical jargon. Describe the burden of the problem, the purpose/objectives of the project, the study methodology and the expected project outputs/end-points.

- f. Duration of project
- g. Total amount requested (USD)

Section 3: Research/Innovation description

- a. **Please select the Research track or Innovation track which is most appropriate for your project**

- b. **Research track**

- i. Question that the research is trying to investigate (30 words)
- ii. Research hypothesis (40 words)
- iii. Rationale (300 words)

Need for research, what is the knowledge gap or scientific problem being addressed, burden of problem, description of context of the target population (including disaggregated data for gender), why AI techniques are needed.

- iv. Research methods (600 words)

Including study design, data to be used, type of AI technique, programmes and how validation will be done.

- v. Detail of the Research Team (300 words),

For Organizations: include job titles, qualifications and role on project.

For students include the course, year of study, institution. Students please also include Mentor's information – Job title, institution, qualification.

- vi. Organisational or student/mentor previous research/ experience or interest related to AI/ MSRH (300 words)

Please provide a brief description of your/your team's relevant experience within the Artificial Intelligence and/or Maternal, Sexual and Reproductive Health field.

c. Innovation track

- i. Name of the innovation
- ii. Problem that the innovation is trying to address (30 words)
- iii. Rationale (300 words)

Describe the need for innovation e.g. what is the need and the practical problem that the innovation is addressing, who are the people affected? Burden of problem, description of context of the target population (including disaggregated data for gender), why AI techniques are needed.

- iv. Innovation development methods (600 words)

Including data or programming to be used, type of AI technique, and how validation will be done. Describe the process through which the innovation will go into market and how it will be evaluated to determine that it meets the needs of the target population.

- v. Detail of the Team (300 words)

*For Organizations: Including job titles, qualifications and role in research/innovation
For students – the course, year of study, institution. Students please also include Mentor's information – Job title, institution, qualification*

- vi. Organisational or student/mentor previous research/ experience or interest related to AI/ MSRH (300 words)

Please provide a brief description of your/your team's relevant experience within the Artificial Intelligence and/or Maternal, Sexual and Reproductive Health field.

Section 4: Responsible Artificial Intelligence Development

- a. Regarding Gender, Equality and Inclusion in AI please provide the following information: (100 words)**

Define clearly how gender equality and inclusion considerations will be integrated into the project design, implementation, monitoring and results. Ensure to discuss how the study design will address intersectional issues that women, adolescent girls, men and other marginalized groups face, including intersecting differences within such groups, may experience during the study and how the research will mitigate any potential harms, ensure inclusion and contribute to positive outcomes in gender and health equity.

Where applicable the applicant should state how the study will promote women and girls’ agency and decision making, male engagement in MSRH and/or a gender transformative family involvement approach in the AI model.

b. Regarding Ethics, please provide the following information: (50 words)

Please provide an ethics statement that confirms that proper considerations will be given to any ethics issues arising out of executing this project. These should still encompass responsible AI, the collection, use and storage of data particularly individually identifiable data. These should also include acknowledgement of necessary ethical approvals for the proposed research undertaking and plans for how to obtain these.

Section 5: Data Access

a. Regarding Access to Data, please provide a summary of the following information:

- i. Describe the data you hope to use in the project (100 words)
- ii. Describe how will the data be used (100 words)
- iii. Where will the data be stored? (100 words)

Section 6: Monitoring and Evaluation

a. Work Plan

A work plan presents a formal road map of the project detailing how workflow will be managed; tracking the execution of various activities and their timelines.

Applicants should complete the table linked below with planned activities, timelines, expected output and person responsible. Ensure integration of gender and inclusion related activities and indicators for tracking progress. For example, “consultations with local partners and target groups” (disaggregated) and indicator “monthly consultations with women and or local groups regularly held.”

[HASH Workplan Template](#)

Project Activities	Q1	Q2	Q3	Q4	Expected Output	Person Responsible
Activity 1 Example: Develop application requirements specification	X				Example: Application requirements document developed	Example: Systems developer
Activity 2						

b. Risks and risk mitigation plan

Every project is prone to risks during the course of execution of activities. Some of these risks could be anticipated, therefore there is a need to pre-plan a course of action on how to address them. Describe factors that could adversely affect the implementation of the study including ethical or gender related risks such as potential harm to target groups. How will these issues affect the ability to implement the project? What steps will be taken to mitigate these risks?

Please list 5 major risks to the project and your planned mitigation strategies using the table below;

Risks	Mitigation strategies
1	
2	

Section 7: Budget

Applicants will be expected to submit an itemised budget and narrative with staffing breakdown, and justification for all costs. Organisational overheads may be included but should be justified in the narrative. Please use the format linked below.

[HASH Budget Template](#)

Section 8: Organizational details

Applicants must submit, where applicable, the following documents to support their proposal, depending on whether they are applying as individuals, start-ups or established organizations.

a. Student:

- i. Curriculum Vitae*
- ii. Evidence of admission to course*
- iii. Recommendation from Academic Mentor*
- iv. Letter of declaration that information provided is correct*

b. Start-up Organization:

- i. Certificate of registration/evidence of the legal status of the organization*
- ii. List of Directors or equivalent and their contact information.*

- iii. *Audited books of accounts or Board-certified financial statements for at least the past one year*
- iv. *Annual programmatic reports for at least the past one year*
- v. *Letter or recommendation/support from previous/current funders/sponsor*
- vi. *Letter of declaration that information provided is correct*
- vii. *Evidence of previous relevant experience/similar work done*

c. Established organization:

- 1. *Certificate of registration/evidence of the legal status of the organization*
- 2. *List of Directors or equivalent and their contact information.*
- 3. *Audited books of accounts or Board-certified financial statements for at least the past one year*
- 4. *Annual programmatic reports for at least the past one year*
- 5. *Letter or recommendation/support from previous/current funders sponsor*
- 6. *Letter of declaration that information provided is correct*
- 7. *Evidence of previous relevant experience/similar work done*

9. ASSESSMENT CRITERIA

Proposals will initially be reviewed by independent, external reviewers according to the criteria below.

REVIEW CRITERIA		WEIGHT
<p>Research Track Research question and rationale</p> <ul style="list-style-type: none"> ● Well-thought-out research question relevant in the local/regional context and can make lasting contributions to the field. ● Acknowledgement of responsible AI and relevant gender issues (if any). ● Good rationale for why AI techniques are needed in this area. 	<p>Innovation Track Innovation problem to be addressed</p> <ul style="list-style-type: none"> ● Well-thought-out innovation using AI in a relevant way in the local/regional context and can make lasting contributions to the field. ● Acknowledgement of responsible AI and relevant gender issues (if any) ● Good rationale for why AI techniques are needed in this area 	20%
Research methods	Methods	30%

<ul style="list-style-type: none"> ● Good outline and information on data to be used, type of AI technique to be applied, with programmes to be used. ● Good description of how validation will be done. 	<ul style="list-style-type: none"> ● Good outline and information on data to be used, type of AI technique to be applied, with programmes to be used. ● Good description of how validation will be done. 	
<p><i>For Start-ups and Established Organizations</i></p> <p>Knowledge and expertise in AI or MSRH</p> <ul style="list-style-type: none"> ● Demonstrated experience engaging in maternal health and/or sexual, and reproductive health and rights through health systems strengthening, and AI innovations in Africa (expertise can be shared among different team members), or strong experience in one with proven track record of collaborations in the other domains. 	<p><i>For Students</i></p> <p>Knowledge and expertise in AI or MSRH</p> <ul style="list-style-type: none"> ● Demonstrated experience with a proven track record of engaging in maternal, sexual, and reproductive health and/or AI innovations in Africa for the student and Academic mentor. 	30%
<p>Ethics/ Gender / Responsible AI</p> <ul style="list-style-type: none"> ● Acknowledgement of gender and responsible AI and plans to mitigate against bias. Clear understanding of ethical processes needed. ● Identification of and definition of gender and responsible AI in the context of the application with plans to mitigate against bias and contribute to responsible AI, gender equality and health equity 		10%
<p>Budget</p> <ul style="list-style-type: none"> ● Clear and coherent plans for the use of available funding, appropriate for the proposed activities 		10%

10. TIMELINE FOR THIS CALL

ACTIVITY	DATE
Launch of the Request for Applications (RFA)	22 nd June, 2022
90-minute Q&A session for interested applicants	30 th June, 2022
Deadline for submission of applications	12 th August, 2022
Review of applications and due-diligence	August – October 2022
Applicants informed of final decisions	November 2022
Research projects begin	December 2022

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ANNEX (SUMMARY OF ORGANIZATIONS)

The Infectious Diseases Institute

The Infectious Diseases Institute (IDI) is a Ugandan not-for-profit organisation, established within and wholly owned by Makerere University, whose mission is to strengthen health systems in Africa with a strong emphasis on infectious diseases, through research and capacity development. IDI is a national and regional centre of excellence in infectious diseases programming. It has seven main operational programs: Prevention, Care and Treatment Programme; Laboratory Services; Capacity Development Programme; Research Programme; Global Health Security Programme which supports interventions in the areas of Laboratory, Epidemiology and Informatics; Infection Prevention and Control and Case Management and Medical Countermeasures. Health Systems Strengthening Programme: IDI is currently the lead CDC PEPFAR implementing partner in 16 districts of Uganda providing care and treatment services to over 200,000 PLHIV.

HASH is situated within the Academy for Health Innovation at IDI. This was established in 2015 through an MOU between IDI, Uganda Ministry of Health and Janssen, the Pharmaceutical Companies of Johnson and Johnson (J&J). The Academy received funding from J&J to fund innovation in clinical care, research and capacity building. This led to nine well-managed sub-grantee projects across maternal health & child health, HIV and TB. The Academy houses an innovation evaluation unit which developed and evaluated digital tools including an interactive voice response tool for HIV, TB and COVID-19 patient support, a web-based app for delivery of government HIV drugs in private pharmacies, medical drones projects, smart caps for pills and more.

Makerere AI Lab - Makerere University College of Computing and Information Science

Established in 1922, Makerere University, Uganda is a leading higher institution of learning. The responsible unit for the proposed hub shall be the College of Computing and Information Sciences. The College of Computing and Information Sciences hosts the AI and Data Science lab (Mak AI lab) -- <https://air.ug>. The Mak AI lab undertakes applied AI and ML research projects that address local challenges in health, agriculture, and environment. The Mak AI lab has over time-built capacity in Computer Vision, Machine Learning, Natural Language Processing, Internet of Things, Cloud Computing, responsible AI and ethics, among others. The Mak AI lab is also part of the Data Science Africa research network and the Data Science Ugandan chapter.

In the Hub the Mak AI lab will provide the following support:

- Providing leadership and mentorship in the area of responsible AI and ethics to the research network. This will be done through workshops, training and sharing of resources. Mak AI lab will support the network in the consideration of responsible AI, gender, and ethical approaches from problem formulation, data collection, model development, evaluation and deployment.
- Training in machine learning and AI applications in the health domain, for example, through experience sharing gained from implementation and deployment of AI algorithms for automated human disease diagnostics.
- Capacity building for the deployment and maintenance of AI systems in the cloud, for example, DevOps and MLOps pipeline.

The Mak AI lab runs weekly research seminars which will be extended to the Hub members. This will provide opportunities for the innovators and researchers to receive feedback from the existing network of experts and researchers at the AI lab.

Sunbird AI

Sunbird AI is a not-for-profit organization whose mission is to provide leadership in artificial intelligence (AI) in the African context. Sunbird AI develops open, practical artificial intelligence systems for social impact and community benefit in Africa.

Sunbird was launched in 2019 and is led by some of Africa's foremost AI experts with a combined experience of over 20 years working in the AI sector in Africa; in academia, inter-governmental organizations like the United Nations and in large private organizations like Google. The major focus of Sunbird AI is to solve problems in Africa by supporting social initiatives, public institutions and policymakers develop new AI technology for their own needs. In leveraging AI to solve social problems, Sunbird AI particularly targets challenges where the

solution can influence policy as a key strategy to creating real impact. Researchers at Sunbird AI have expertise in concretely defining social challenges and matching them to AI solutions, in the general fields of AI including machine learning, computer vision and natural language processing as well as in capacity building. Sunbird AI is based in Kampala, Uganda.

Sunbird AI is pioneering homegrown development and use of AI to solve important problems, including global health challenges and particularly customizing these interventions to the local context of Uganda and Africa. To create meaningful change Sunbird AI is also focused on generating evidence for policy change and decision making. The responsible use of AI should result in improved decision making from the public sector in aspects that benefit the society the most.

