

IDI-McKINNELL KNOWLEDGE CENTRE



HASH SUB-GRANTEE INCEPTION WORKSHOP REPORT



ARTIFICIAL
INTELLIGENCE
FOR
DEVELOPMENT
AFRICA



HASH



IDRC · CRDI

International Development Research Centre
Centre de recherches pour le développement international

Canada



MAKERERE UNIVERSITY



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DISEASES
INSTITUTE



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Sunbird AI



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This report was prepared as part of the Hub for Artificial Intelligence in Maternal, Sexual, Reproductive Health in Sub-Saharan Africa (HASH). HASH is a research hub formed by a multidisciplinary consortium of the Infectious Diseases Institute, the Makerere University AI lab and Sunbird AI. The objective of this research Hub is to advance Maternal, Sexual, and Reproductive Health (MSRH) and rights while strengthening health systems in Sub-Saharan Africa (SSA) through the responsible development and deployment of Artificial Intelligence (AI) innovations.

This work was conducted as part of the Artificial Intelligence for Development in Africa (AI4D Africa) program, with the financial support of Canada's International Development Research Centre (IDRC) and the Swedish International Development Cooperation Agency (SIDA).

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2. EXECUTIVE SUMMARY

The Hub for Artificial Intelligence in Maternal, Sexual and Reproductive Health (HASH) is an initiative funded by the International Development Research Centre (IDRC), as part of the Artificial Intelligence Development in Africa Program (AI4D Africa). HASH is led by a multi-disciplinary consortium of the Academy for Health Innovation Uganda (at Infectious Diseases Institute), Makerere University Artificial Intelligence (AI) Lab and Sunbird AI. The mandate of HASH is to advance maternal, sexual, and reproductive health (MSRH) in sub-Saharan Africa (SSA) through the responsible development and deployment of Artificial Intelligence (AI) innovations.

As part of this mandate, the Hub launched a Request for Applications in June 2022 to invite applications for innovative solutions to MSRH challenges in Sub-Saharan Africa. After a rigorous review process, ten successful applicants were awarded sub-grants (see Appendix 1). Representatives of these ten sub-grantees were invited to Uganda from 12th to 16th December 2022. One non-subgrantee was also invited as he was a very strong RFA applicant but could not be funded due to resource constraints.

During this time, they attended the Health Innovations Conference (HIC) from 12th to 13th December 2022 and the HASH Inception meeting and training for three days from 14th to 16th December 2022. This report summarizes the outcomes of the Inception meeting.

The objectives of the Inception meeting were:



To conduct introductory trainings on responsible AI that prepare the sub-grantees to begin their projects.



To facilitate peer learning and expert feedback on proposed Subgrantee projects.



To conduct a workshop to frame the HASH Network around the needs and values of stakeholders



To create an environment that supports networking and relationship building among the sub-grantees.

















These objectives were met through a variety of activities that took place during the course of the week. The workshop to frame the HASH Network was based upon the Value Proposition Canvas (B2B International, 2024).

The Value Proposition Canvas is a useful tool for understanding the end-user's perspective and will help the Consortium to develop solutions that are more tailored to the potential Network members' needs.

The use of the Canvas framework compelled the meeting attendees to evaluate the potential value of the Network to them as members and how it can support their specific tasks, needs, challenges and desired benefits.

These discussions were summarized into Customer Jobs, Pains, Gains that describe their tasks, the challenges they face in achieving these tasks, and benefits that would ease their work respectively as outlined in figure 1.

Figure 1: The Tasks, Challenges and Desired Benefits of HASH Network Members

Tasks Network members need to do	Challenges faced by Network members	Benefits Network members desire
 To innovate	 Limited Processing power	 Career and institutional progression
 To obtain funding	 Limited Funding	 Visibility and Stakeholder engagement
 To establish partnerships	 Difficulty in finding mentors	 Mentorship for impactful research
 To continually improve knowledge and skills	 Need for a collaboration and networking platform	 Networking and Collaboration
 To access datasets	 Few publicly available MSRH datasets	 Capacity building
		 Increased access to datasets

This workshop also culminated in the attendees selecting a single Value Proposition statement that best represents the mandate of a Network they would like to be a part of. The attendees collaboratively decided on the following Value Proposition for the HASH Network:

Creating a collaborative network for developing resilient and sustainable systems for Maternal Reproductive and Sexual Health (MSRH) through responsible AI.

The attendees also committed to actionable steps through which the Subgrantees and the HASH Consortium can support the work and growth of the HASH Network in the months and years to come.

Figure 2: Actionable steps for the HASH Secretariat and HASH Subgrantees to support the HASH Network

What can the HASH secretariat do to support the network?	What can the HASH Subgrantees do to support the network?
<ul style="list-style-type: none"> • Provide mentorship and training • Provide resources • Create networking platform • Support scale up • Project supervision 	<ul style="list-style-type: none"> • Provide mentorship • Complete HASH projects • Publicize HASH • Support dataset creation and sharing • Offer technical support • Promote AI for MSRH

They also made recommendations on means through which the HASH Consortium can best support/promote the Network.

Finally, the Subgrantees also received guidance on expectations of the sub-grant including milestones and timelines.

The next steps for the Hub are to work out how to collaboratively execute the value proposition. There is much work that needs to be done. Network members want to benefit but also want to be involved and contribute.

It was a joy attending the meeting with the sub-grantees and interacting with all of them. The HASH Consortium wishes them the very best in their projects.

3. INTRODUCTION

The World Health Organization (WHO) estimates that poor reproductive health accounts for up to 18% of the global burden of disease, and 32% of the total burden of disease for women of reproductive age. In Sub-Saharan Africa, death and disability resulting from reproductive health causes remain unacceptably high. The global adult lifetime risk of maternal death is 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). (Say et al., 2007). The prevention and control of sexually transmitted infections is another area of concern; for example, congenital syphilis is the second leading cause of preventable stillbirth globally, preceded only by malaria. Evidence shows that vulnerable populations such as adolescents in Africa continue to be more susceptible to STIs, HIV, unwanted pregnancies and unsafe abortions. Therefore, based on research justification, the thematic priority areas for HASH have been Maternal Health, Adolescent Sexual Reproductive Health, Sexually Transmitted Infections (STIs) and HIV.

Recently, there has been an upsurge in available digitized 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. This provides a huge opportunity for data-driven strategies and innovations. However, there is currently limited research capacity to make use of this valuable resource for improving the health of the population.

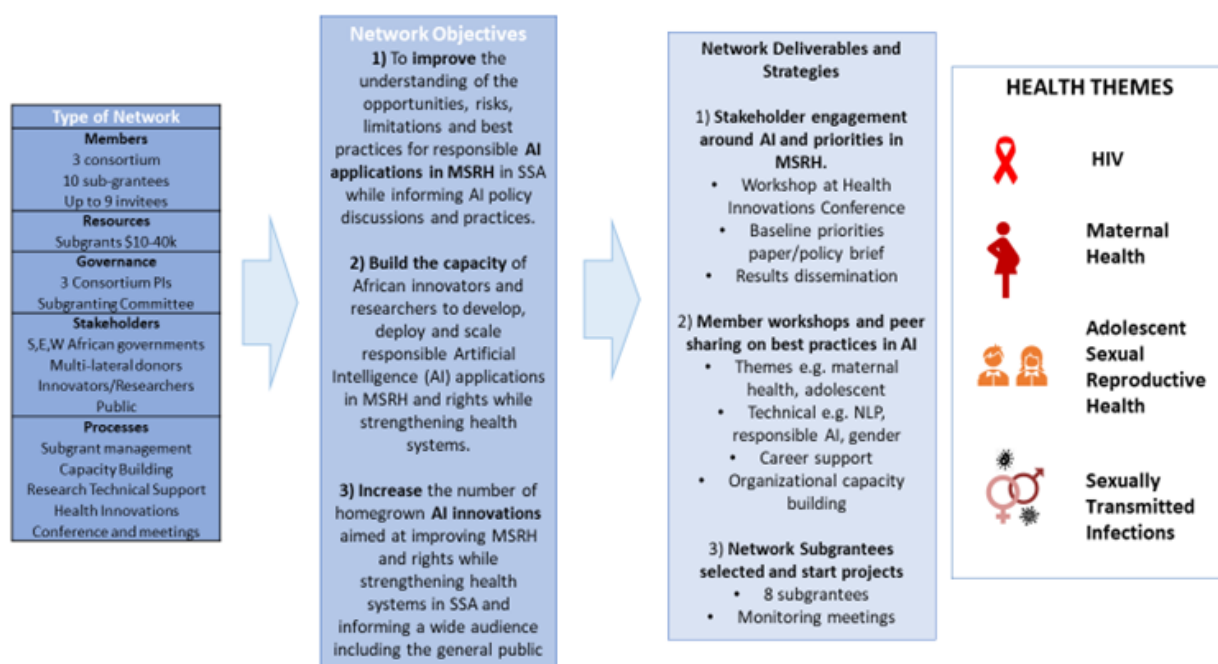
The Academy for Health Innovation Uganda (at Infectious Diseases Institute), Makerere University Artificial Intelligence (AI) Lab and Sunbird AI are the members of a multi-disciplinary consortium formed in 2021 through funding from the International Development Research Centre (IDRC), as part of the Artificial Intelligence Development in Africa Program (AI4D Africa). The consortium was formed to implement an African AI research hub for Maternal, Sexual and Reproductive Health (MSRH). The Hub is titled “Hub for Artificial Intelligence in Maternal, Sexual and Reproductive Health” (HASH). This research Hub will focus on harnessing the opportunities above by establishing a critical network of enthusiasts working in the AI for MRSRH space. 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 and increase impact in the four key theme areas of Maternal Health, Adolescent Sexual Reproductive Health, Sexually Transmitted Infections.

The overall objective of HASH 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 Artificial Intelligence (AI) innovations.

Specific Objectives

- I. Identify, validate and document priority research sub-themes at the intersections of AI and maternal, sexual, and reproductive health and rights, and health systems strengthening in SSA.
- II. Strengthen the capacity of African innovators, researchers, and policymakers to support responsible AI applications in maternal, sexual, and reproductive health and rights within their health systems.
- III. Increase and strengthen the number of homegrown AI innovations to develop, deploy and scale responsible AI applications aimed at improving maternal, sexual, and reproductive health and rights while strengthening health systems in SSA, and informing a wide audience including the general public.

Figure 3: HASH Theory of Change



To achieve this, the Hub targets pan-African anglophone and francophone researchers, organizations, innovators and other stakeholders working to enhance the use of AI and data technologies for MSRH. Grounded in the ethical and responsible application of AI, the Hub provides capacity building through technical and methodological assistance to its members. The Hub also provides opportunities for mentorship, collaboration and funding.

In particular, HASH set out to support local AI innovators in Sub-Saharan Africa to research and validate their ideas in key thematic areas of Maternal Health, Sexually Transmitted Infections (STIs), Adolescent Sexual Reproductive Health and HIV. The innovators were identified through a competitive Request for Applications (RFA) that was launched targeting novel AI research in the four thematic areas. The RFA was disseminated widely across Sub-Saharan Africa from 22nd June to 12th August 2022. The RFA called for AI innovations in MSRH from the following applicant groups:

- Registered Masters or PhD students
- Start-up Organizations younger than 5 years
- Established Organizations older than 5 years

In particular, the RFA welcomed innovations and/or research projects that provided solutions in the four theme areas of:

- Maternal Health
- Sexually Transmitted Infections (STIs)
- Adolescent Sexual Reproductive Health (SRH)
- HIV

The RFA resulted in the selection of ten innovators to receive subgrantee funding and other technical support to develop and validate their ideas for the use of AI as a solution to pressing challenges in MSRH in Sub-Saharan Africa.

Representatives of the ten sub-grantees (see Appendix 1) were invited to Uganda from 12th to 16th December 2022. One non-subgrantee was also invited as he had a very strong application but could not be funded due to resource constraints.

During this time, they attended the Health Innovations Conference (HIC) from 12th to 13th December 2022 and the HASH Inception meeting and training for three days from 14th to 16th December 2022. The HASH consortium catered for their subsistence, accommodation, local travel and conference fees during this period.

The Inception meeting was held at the IDI-McKinnel Knowledge Centre in Kampala, Uganda. This report details the outcomes of the three-day inception meeting held in December 2022 to officially launch the first HASH subgrantee projects and the HASH Network.

4. ATTENDANCE

The HASH inception meeting invited all members of the HASH consortium, the sub-grantee representatives, AI experts from Makerere University and other AI enthusiasts who could be part of the Network. The meeting registered 44 attendees over the three days.

4.1 Summary of attendance

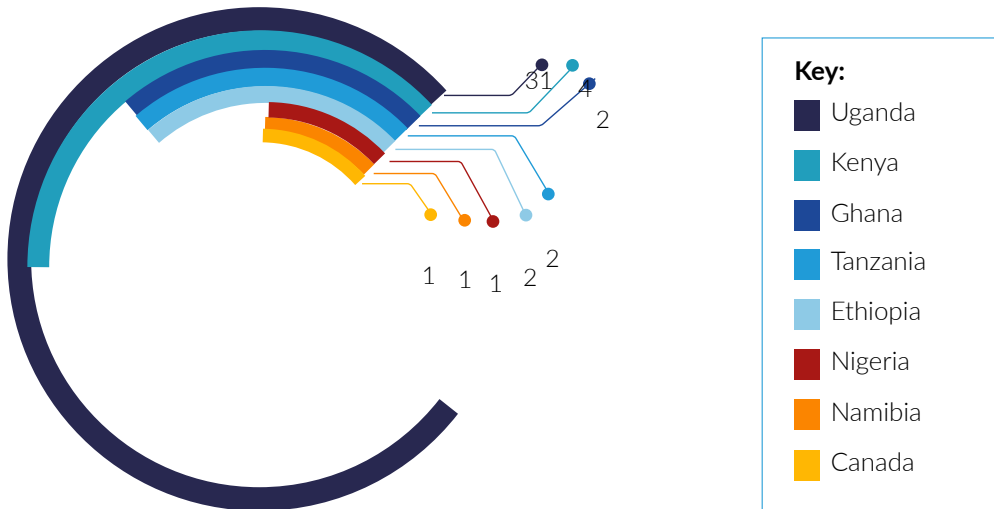


Chart 1: Summary of Attendance by country

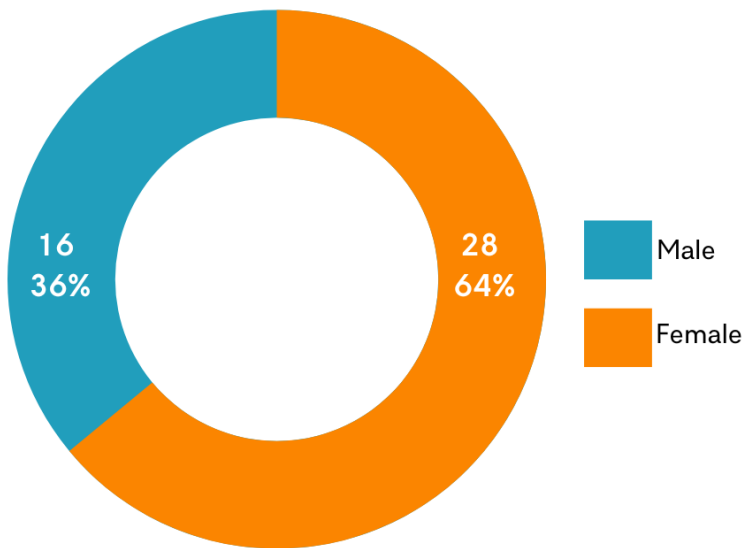


Chart 2: Summary of Attendance by Gender

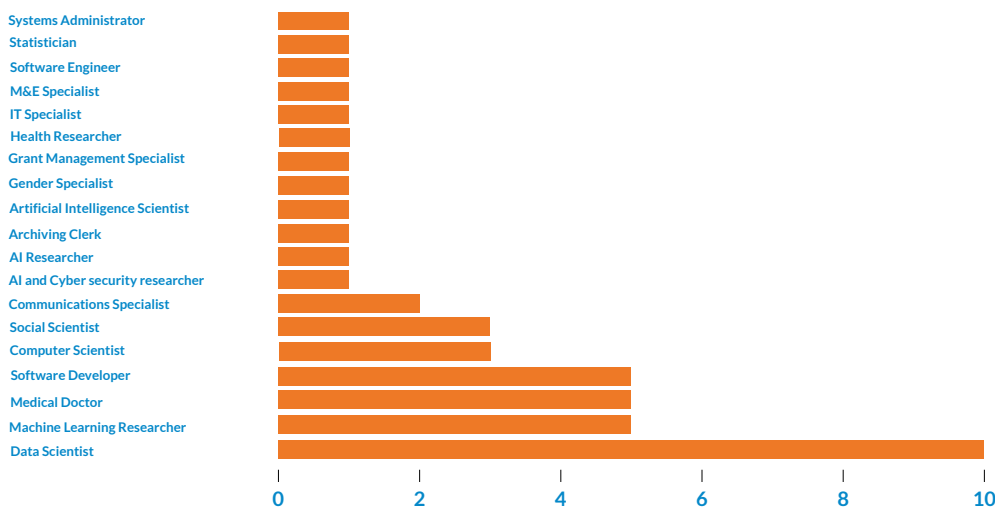


Chart 3: Summary of Attendance by Professional Designation

5. OBJECTIVES OF THE INCEPTION MEETING.

5.1. Main Objectives

- To conduct introductory trainings on responsible AI, that prepare the sub-grantees to begin their projects.
- To facilitate peer learning and expert feedback on proposed Subgrantee projects.
- To conduct a workshop to frame the HASH Network around the needs and values of stakeholders.
- To create an environment that supports networking and relationship building among the sub-grantees.

Table 1: Activities to achieve the HASH Inception meeting objectives

Objective	Activity
To conduct introductory trainings on responsible AI, that prepare the sub-grantees to begin their projects.	<p>On Day 1 attendees were trained on a variety of topics which included: AI Introduction. Data integrity and Data. Machine Learning (ML) tools and platforms. Gender equity, Inclusion and Intersectionality in AI for MSRHR.</p> <p>On Day 3, attendees were also informed about the continuous support available to them in the form of AI Clinics through Sunbird AI. They were also informed about the expectations of the grant in terms of deliverables and timelines.</p>
To facilitate peer learning and expert feedback on proposed Subgrantee projects.	On Day 2, the sub-grantees presented their research and innovation projects. They received expert feedback and peer reviews. This feedback would help the sub-grantees fine tune their projects.
To conduct a brainstorming workshop to frame the HASH Network around the needs and values of stakeholders.	On Day 3, the attendees brainstormed on: The Pains, Gains and Customer jobs of potential Network members. Potential Pain relievers, Gain Creators and Products & services of the Network. The value proposition statement of the Network.
To create an environment that supports networking and relationship building among the sub-grantees.	The sub-grantees stayed at the same hotel, attended the Health Innovations Conference, were taken on a tour of Makerere AI Lab, and were treated to a cultural show at Ndere Center.

6. HASH NETWORK BRAINSTORMING SESSION

There are many pockets of AI work being done in Sub-Saharan Africa. Bringing these many stakeholders together would create a platform that has the potential to promote AI research and development, influence policy and improve health systems in the African context. Therefore, the HASH Consortium has purposed to form a pan-African Network of stakeholders in the AI and /or MSRSH space. The Network welcomes enthusiasts, researchers and organizations working in the AI and/or MRSRSH space.

To maximise the impact of the Network, it is necessary to proactively consult stakeholders on their needs and desires as possible members of the Network (Sedmark, 2021). The attendees of the HASH Inception meeting were engaged in brainstorming activities over the course of the three days to achieve this. The framework for the brainstorming sessions was the Value Proposition Canvas.

The Value Proposition Canvas is a useful tool for understanding the end-user's perspective and will help the Consortium to develop solutions that are more tailored to the Network members' needs. The use of the framework compelled the meeting attendees to evaluate the potential value of the Network and how it addresses their specific needs and challenges.

Figure 4: The Value Proposition Canvas

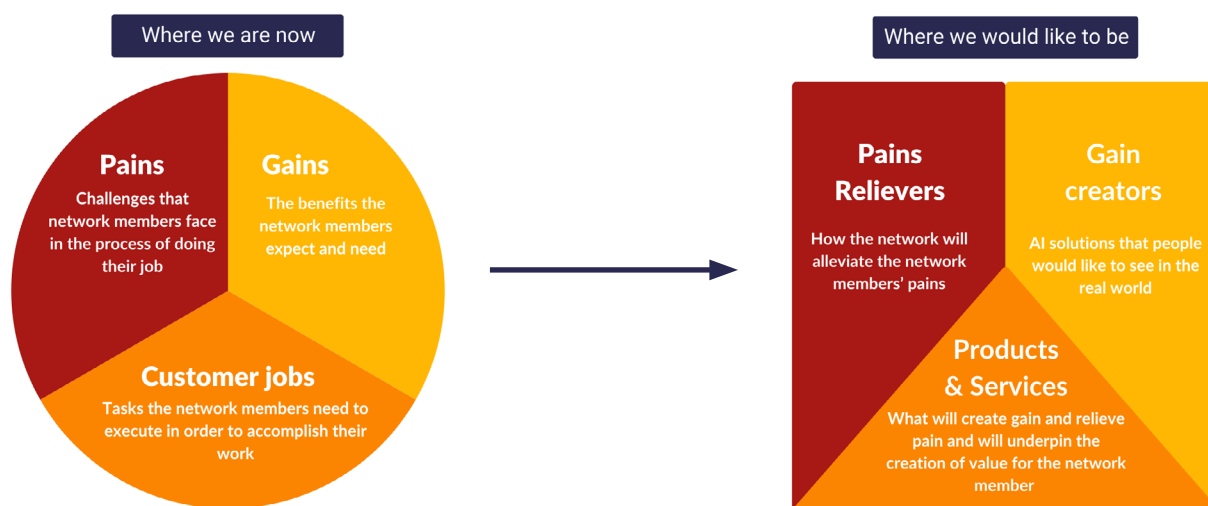


Chart 3: Summary of Attendance by Professional Designation

The Value Proposition Canvas is divided into two main sections; The Customer profile which identifies the end-user's wants, needs, and frustrations. The Value Proposition which breaks down the product (in this case, the Network) into its individual features and defines how they offer solutions to common end-user problems.

Methodology

The brainstorming was done on Day 1 and Day 3 of the meeting. Members were told to imagine a Network for AI in MSRSH and answer some questions.

1. On Day 1, the meeting attendees were asked to answer the following questions individually:
 - a. What is one problem that you think a Network might be able to help you or your project with?
 - b. What is one thing you think a Network may be able to do for your organization, university or even country?

The meeting attendees were then split up into four groups where they came together to share their answers and brainstorm on more possible responses to questions I and II.

The groups were also asked to answer the question:

c. What priorities do you think the Network should be addressing?

The four groups then presented their responses to questions a-c to the rest of the members for discussion.

2. On Day 3 the meeting attendees were primed for a future facing discussion through an introductory video on the Future of Healthcare. They were then split up into four groups for each of the four HASH themes – Maternal Health, HIV, STIs, and Adolescent SRH. In these four groups they discussed the question:

d. Imagine an ideal future Africa where all resources are available and well utilized, what kind of AI innovations would you like to see in the area of your theme? OR What is your vision for the future of AI in your theme?

The Customer profile section of the Value Proposition Canvas was then introduced (see Figure 1). The meeting attendees then came together, read out all the answers to questions I and II and collectively decided whether to categorize them as a Customer Job, Pain or a Gain. These were populated on a chart.

The Value Proposition section of the Canvas (see Figure 1) was then introduced. Each of the four theme groups were then invited to share their responses to question IV with the rest of the attendees in order to paint the picture of their vision for the future of AI in their theme. These visions populated the Gain Creators section.

Since these gain creators represented the future that the attendees wanted to see, the facilitator invited them to then discuss the products and services and the pain relievers that would help them attain that future. These Pain Relievers and Products and Services came from their responses to Question III.

Finally, considering all the discussions of the future vision, what challenges people had in the present and ways those challenges could be addressed. Attendees were split into four teams and asked to answer the question:

e. What is your proposed Value Proposition statement for the Network in order to satisfy all these needs?

Each team came up with a draft value proposition statement on a sheet of paper. This statement was then passed on to the next team who could either edit it or keep it as is. The sheets of paper were passed on until each team received their original sheet of paper, showing changes made by other teams along the way. The team then wrote a final draft statement by either adhering to their initial statement or refining it based on the suggestions.

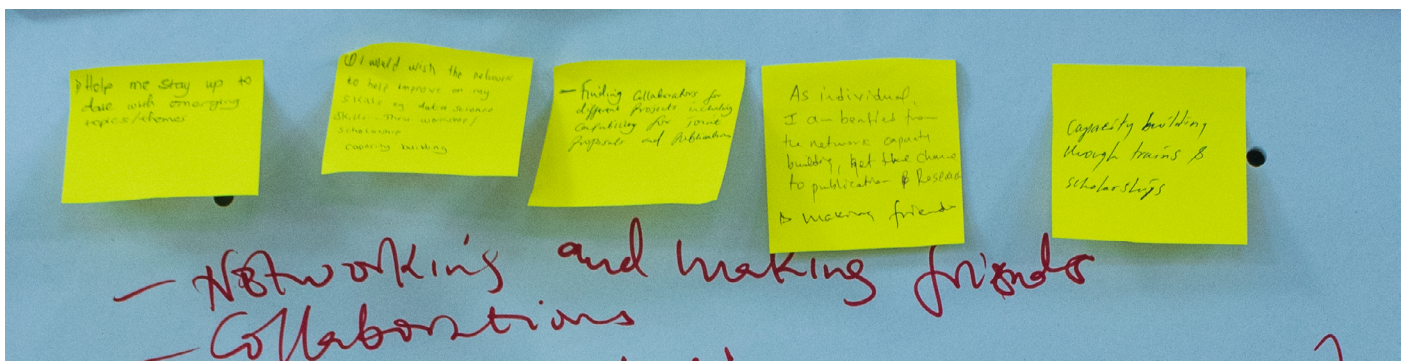
All members then had the opportunity to vote for two final drafts that most resonated with them as the value proposition of a Network they would like to join. The most popular value proposition was announced and adopted as the Value Proposition of the Network. The meeting attendees were then asked to consider the roles of potential members of the Network.

They were asked to write down answers the following questions:

- f. What can the HASH secretariat do to support the Network?
- g. What can I do to support the Network?

A timeline from 2022 to 2040 was pinned on the wall and the attendees were asked to pin their responses along the timeline. The meeting attendees were officially branded as the Founding Members of the HASH Network.

Finally, members were asked to volunteer to be representatives/ambassadors for the HASH Network in their different spheres of influence. Collectively, these members were called the HASH Network Working Group responsible for building and growing the network. The attendees' responses to each question and each section of the Value Proposition have been analyzed and categorized into themes as shown below.



Results:

6.1 The Customer Profile

The Customer profile section of the Value Proposition Canvas was then introduced (see Figure 1). The meeting attendees then came together, read out all the answers to questions I and II and collectively decided whether to categorize them as a customer job, pain or a gain. These were populated on a chart. The Customer profile of the Value Proposition Canvas identifies the end-user's wants, needs, and frustrations. It comprises the Customer Jobs, Pains and Gains.

6.1.1. Customer Jobs

In the context of the HASH Network, Customer Jobs refer to the specific tasks or activities that the Network members need to complete in order to accomplish their work. By understanding the customer jobs, the Network board can develop solutions that are tailored to help the network members complete these tasks more effectively and efficiently.

Overall, understanding the Customer Jobs is critical to creating a value proposition that resonates with end-users, and that can help to increase member satisfaction and loyalty.

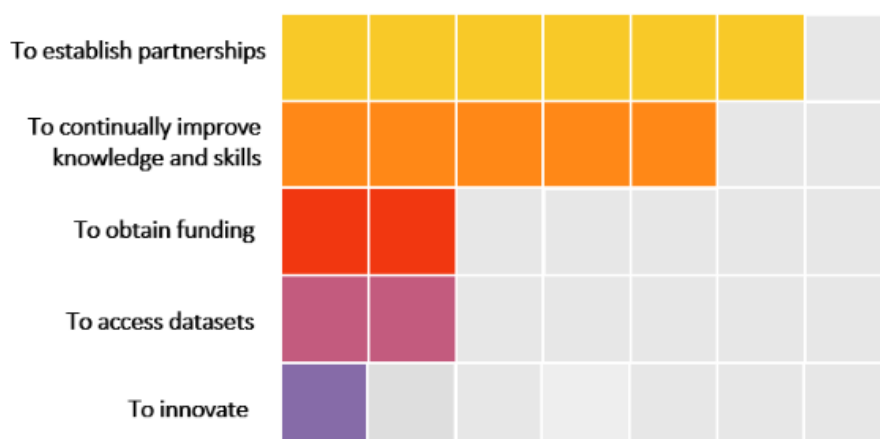
The respondents reported the following Customer Jobs:

- i. To access datasets
- ii. To establish partnerships
- iii. To obtain funding
- iv. To continually improve knowledge and skills
- v. To innovate

Table 2: Table Showing the Respondents' Customer Jobs

THEME	RESPONSES UNDER THEME
To establish partnerships	<ul style="list-style-type: none"> • Bring expertise and skills of professionals to assess, plan and manage care jointly • Partnerships and collaborations with those with similar interests in maternal and sexual reproductive health. • Collaboration with the partners in AI to develop projects which impact the community positively.
To access datasets	<ul style="list-style-type: none"> • The network might be asked to help out projects on the source of datasets for comparison on teenage pregnancies, data storage, data annotations guidelines, capacity building for project growth. • Creation of a dataset repository.
To obtain funding	<ul style="list-style-type: none"> • Opening / facilitation to open an innovation hub. • Attracting significant research grants for infrastructure support and research.
To continually improve knowledge and skills	<ul style="list-style-type: none"> • Bring expertise and skills of professionals to assess, plan and manage care jointly. • I would wish the network to help improve on my skills for example data science skills through workshop scholarship Capacity building through training and scholarships. • Capacity building of health professionals on maternal and productive health.
To Innovate	<ul style="list-style-type: none"> • Challenge to think creatively, get more creative, innovate more.

Figure 5: A Summary of the Respondents' Customer Jobs in Descending Order of Popularity



6.1.2. Pains

These are the challenges that potential Network members face in the process of doing their job. Pains can be both functional, such as inefficiency or lack of a feature; and emotional, such as frustration or dissatisfaction. Identifying customer pain points is an important step in understanding customer needs and developing solutions that address those needs.

By understanding the pains of the Network members, the Consortium aims to identify specific areas where the Network can provide value and develop solutions that are tailored to the Network members' needs. (Altextsoft, 2022)

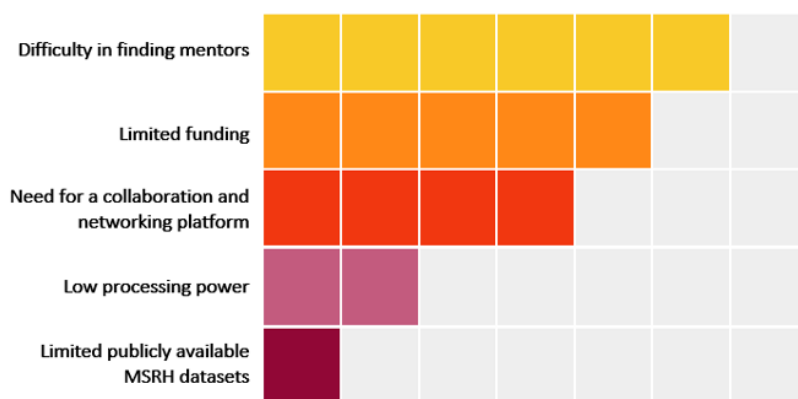
The key pains of the respondents include:

- i. Low processing power
- ii. Limited funding
- iii. Difficulty in finding mentors
- iv. Need for collaboration and networking platform.
- v. Limited publicly available MSRH datasets.

Table 3: Table showing the Respondents' Pains

THEME	RESPONSES UNDER THEME
Low Processing power	<ul style="list-style-type: none"> • Low processing capabilities by Graphics Processing Units (GPUs). • Processing units and services.
Limited Funding	<ul style="list-style-type: none"> • Limited number of grants • Creating more funding opportunities. • Lack of knowledge on how to scale our funding coffers to upscale the project.
Difficulty in finding Mentors.	<ul style="list-style-type: none"> • Help me improve my research output and career progression in AI (Artificial Intelligence) in Health. • To help with the challenges which might arise during the project's development. • Improve quality of life to women as an outcome of the research. • Help churn out research projects that would be useful for policy formulation by my government and departmental collaboration. • Mentorship • Lack of direction in the right direction
Need for a collaboration and networking platform	<ul style="list-style-type: none"> • Networking benefits to individuals. • Visibility. • Finding collaborators for different projects including capabilities for joint proposals and publications. • Community of practice.
Limited publicly available MSRH datasets	<ul style="list-style-type: none"> • Limited access to datasets for use.

Figure 6: A Summary of Respondents' Pains in Descending Order of Popularity



6.1.3. Gains

In the context of the HASH Network, Gains refer to the positive outcomes and benefits that the network members expect and desire to achieve from joining the network. By identifying the specific gains that the network members are looking to achieve, the consortium can develop a network that is tailored to meet their needs and is aligned with their objectives.

The Gains that respondents would like to see emerging from the Network include:

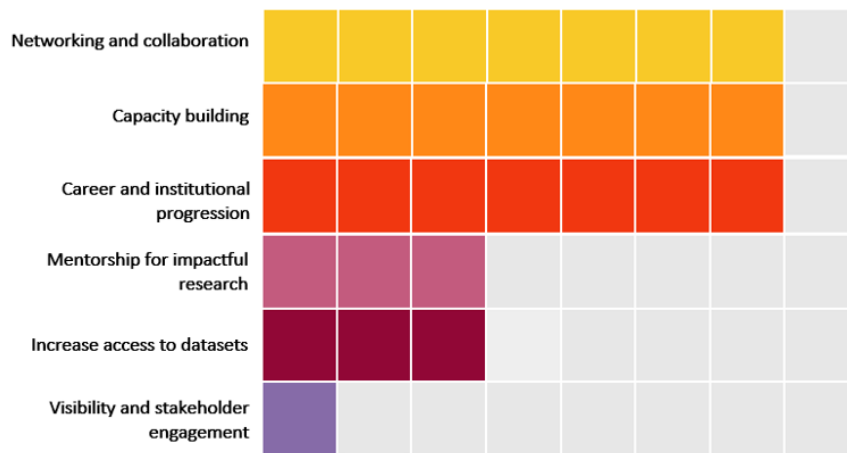
- i. Career and institutional progression
- ii. Networking and collaboration
- iii. Capacity building
- iv. Mentorship for impactful research
- v. Increase access to datasets
- vi. Visibility and Stakeholder engagement

Table 4: Table showing the Gains that Respondents Would Like to See Emerging from the Network

THEME	RESPONSES UNDER THEME
Career and institutional progression	<ul style="list-style-type: none"> To meet the mission of the university. To make his university world ranked. As an individual, I will benefit from the network capacity building, get the chance to publish and research. Help my university achieve its vision of being a hub for research in the global world.
Networking and collaboration	<ul style="list-style-type: none"> To create links with others. Making friends. Improve aspects of co-creation and creativity. Collaboration (to work together). Create an African center of excellence with experts all over Africa (like a society).
Mentorship for impactful research	<ul style="list-style-type: none"> Improved research. Improve aspects of co-creation and creativity.
Increase access to datasets	<ul style="list-style-type: none"> Dataset sharing. Information sharing.

Dataset sharing. Information sharing.	<ul style="list-style-type: none"> • Acknowledgement by the government.
Capacity building	<ul style="list-style-type: none"> • As an individual, I will benefit from the network capacity building, get the chance to publish and research. • Capacity building. • Help me stay up to date with emerging topics and themes. • Information sharing. • Development of the chatbot to make it responsible and inclusive.

Figure 7: A Summary of the Gains that Respondents' Would Like to See Emerging From the Network, in Descending Order of Popularity



6.2. What are the Potential Network Members' Pain Relievers, Products and Services, Gain Creators?

6.2.1. Pain Relievers

In the context of the HASH network, these are the ways in which a network can address/alleviate the pains of its customers. It is important to note that pain relievers need to be directly connected to the pains identified by customers, otherwise they may not be effective or well-received (Ownr, Team 2023). The things that could ease the challenges that AI developers face in their work include:

- i. The network could link network members to resources such as funding opportunities, datasets, processing tools.
- ii. The network could provide operational frameworks for scaling and collaboration.
- iii. The network could provide support for monitoring and evaluation
- iv. The network could provide support for cost analyses to show sustainability and applicability.
- v. The network could create more awareness to help reduce poor outcomes of MSRHS such as teenage pregnancy.
- vi. The network could provide trainings about AI.
- vii. The network could help with commercialization of innovations
- viii. The network could share relevant research findings.

6.2.2. Products and Services

Products and services are features developed by the Network that will create gain and relieve pain, and will underpin the creation of value for the Network member could be useful to AI developers. These include:

The respondents recommended the following products and services:

- i. A platform for collaboration
- ii. Capacity building
- iii. Educating the public
- iv. Mentorship for impactful research

Table 5: Table Showing the Products and Services for the HASH Network as Recommended by the Respondents

THEME	RESPONSES UNDER THEME
A platform for collaboration	<ul style="list-style-type: none"> • Write / Collaborate to write proposals to win more grants for more research. • Collaboration and data sharing and other resources. • Departmental Collaboration.
Capacity building	<ul style="list-style-type: none"> • Capacity building/ Research. • Assistance & Guidance to develop policy briefs. • Capacity building on writing award winning grants.
Educating the public	<ul style="list-style-type: none"> • Addressing the issues of STI through the network. • Creating awareness (advising) using AI.
Mentorship for impactful research	<ul style="list-style-type: none"> • Assist & guidance to develop policy briefs. • Mentorship program for career development & capacity.

6.2.3. Gain creators

In the context of the HASH network, gain creators were defined as the AI solutions that people would like to see in the real world if the environment for research and development was ideal.

The respondents described the following Gain Creators under the four HASH theme areas:

Table 6: Table Showing Gain Creators as Described by the Respondents for Each HASH Theme Area.

THEME	RESPONSES UNDER THEME
Maternal Health	<ul style="list-style-type: none"> • Anticipated challenges are averted through precision medicine. • Personalized medicine and treatment • Pregnancy adverse events predictable before the actual pregnancy through (DNA) Genome sequencing. • Ambient living spaces that have sensors for pregnancy monitoring.

Sexually Transmitted Infections (STIs)	<ul style="list-style-type: none"> • Vaccination for most STIs. • Personalized Home-based testing for STIs testing via an app. • Medicine vending machine / home delivery via drone. • Chatbot to help with questions and to also help with interpretation.
Adolescent Sexual Reproductive Health	<ul style="list-style-type: none"> • Adolescent use of Brain Computer Interface (BCI) • Responsible and empowered adolescents. • Application to support Gender Based Violence (GBV) reporting.
HIV	<ul style="list-style-type: none"> • Tracking species that spread HIV. • HIV vaccines. • Precision HIV treatment and care. • AI tracking patterns of HIV infections. • HIV chatbot (Siri) for consulting through audio/videos. • Creating knowledge systems. • Ability to track new infections. • Tracking patterns of infections. • The network can help to fund and shape ideas that provide solutions to healthcare in life long illnesses.

6.3. What is your Proposed Value Proposition Statement?

A value proposition statement is a clear and concise statement that summarizes the key benefits that a customer will receive from a product, and how it addresses their specific problem or need (Twin, 2024). In this case, the meeting attendees were to figure out why people should join the Network.

During the brainstorming session, the sub-grantees were asked to work in teams to come up with a value proposition for the network; to think about how the network could provide value to them, in terms of addressing their pains and creating gains for them.

The goal of this exercise was to identify and articulate the key value that the network can provide to its members and customers.

Proposed Value Proposition statements

- v. HASH provides a collaborative platform for resource mobilization and AI expertise towards co-designing solutions for MSRH
- vi. Creating a collaborative network for developing resilient and sustainable systems for Maternal Reproductive and Sexual Health (MARSH) through responsible AI.
- vii. An African wide collaborative network to solve MSRH challenges using AI and contextual knowledge and skills
- viii. HASH exists to strengthen collaborative and capacity building in AI to achieve resilient innovation in MSRH in Africa.

Final Value Proposition statement

Creating a collaborative network for developing resilient and sustainable systems for Maternal Reproductive and Sexual Health (MARSH) through responsible AI.

6.4. What can the HASH Secretariat do to support the network?

Suggestions for what the secretariat can do to support the network:

- i. Provide mentorship and training
- ii. Provide resources
- iii. Create networking platform
- iv. Support scale up
- v. Subgrantee project supervision

Table 7: Table Showing the Respondent's perceptions of what the HASH Secretariat Can Do to Support the HASH Network.

THEME	RESPONSES UNDER THEME
Provide mentorship and training	<ul style="list-style-type: none"> • Conduct more training programs to build skills in Artificial intelligence (AI) & Maternal Sexual and Reproductive Health (MSRH) • Build good processes to encourage growth • Skills development in AI & health through more workshops. • Help us build capacity in AI • Expertise in AI & MSRH • Capacity building on grant writing • Provide training and scholarships for MSc & PHD in Data science for public health • Furnish us with research opportunities • Capacity building • Provide mentorship and GPUs
Provide resources	<ul style="list-style-type: none"> • Solicit for more research funds for the network. • Resources for accomplishing the set tasks ie datasets. • Provide grants / funding that the members can use for research. • Provide combined repositories of datasets. • Infrastructure resources. • Generate funding which can then be given to grantees. • Provide the enabling resources (Equipment for research, testing validation and deployment). • More support in terms of resources and data. • Make funding opportunities more quickly available. • Provide GPUs
Create a networking platform	<ul style="list-style-type: none"> • Create a wide range collaboration which will join different innovative ideas towards actual solutions in Africa. • Open up a channel for easy communication like slack to ease information flow. • Create a collaborative environment with governments across Africa for AI and health. • Keep us up to date on other opportunities for additional grants. • Collaborative network. • Build local innovation hubs within MSRH and AI

Support scale up	<ul style="list-style-type: none"> • Opportunity to scale projects. • MSRH Projects scaling into the future and network expansion. • Scale up support and tools for scaling up.
Subgrantee project supervision	<ul style="list-style-type: none"> • Organize quarterly online meetings for sub-grantees to discuss the progress of our projects.

6.5. What will the sub-grantees/Network members do to support the Network?

Based on the different responses, here is what the sub-grantees/Network members can contribute to the Network:

- i. Provide mentorship
- ii. Complete HASH project and continue to promote AI for MSRH
- iii. Support dataset creation and sharing
- iv. Publicize HASH
- v. Offer technical support to the network

Table 8: Table Showing the Respondents' Views on What Network Members Can Do To Support the HASH Network.

THEME	RESPONSES UNDER THEME
Provide mentorship	<ul style="list-style-type: none"> • Share skills and findings with a network to enable growth and impact. • Can offer my skill set and other resources I can offer. • Provide mentorship to others. • Mentorship. • Become an expert resource for the network. • Provide expertise in public health and data science for HASH.
Complete HASH project	<ul style="list-style-type: none"> • Promise to achieve all our project needs and goals of HASH the founders for our project. • Timely reporting. • Publish articles from our project. • Generate a solution that speaks to the objectives of HASH.
Continue to promote AI for MSRH	<ul style="list-style-type: none"> • Produce research to show the impact that AI can have on health in LMICs. • Participate in conferences on AI and health. • Introduce policy to ensure that AI is allowed to easily proliferate in the health space. • To develop applications and participate in the network activities in enhancing MSRH initiatives. • Creating more solutions using AI that will benefit the communities, especially children and adolescents.
Support dataset creation and sharing	<ul style="list-style-type: none"> • Participate in data generation. • Share any relevant datasets that I have access to assist those working on similar projects to mine. • Contribute to the dataset on gestation hypertension to the HASH repository.

THEME	RESPONSES UNDER THEME
Publicize HASH	<ul style="list-style-type: none"> • Actively collaborate with the network and publicize HASH. • Scientific publicization on AI solutions for MSRH. • To raise awareness through my network on the HASH network. • Tell potential partners about the network. • Creating awareness about team collaboration. • Inform colleagues with interest in AI and health about the network.
Support dataset creation and sharing	<ul style="list-style-type: none"> • Participate in data generation. • Share any relevant datasets that I have access to assist those working on similar projects to mine. • Contribute to the dataset on gestation hypertension to the HASH repository.
Offer technical support to the network	<ul style="list-style-type: none"> • I am available to offer AI technical support to members in the network. • Offer technical support to members. • Proactively help to generate context specific ideas and solutions.

6.6. Network Working Group

On Day 3, meeting attendees were asked to volunteer to be representatives/ambassadors for the HASH Network in their different spheres of influence. Collectively, these members were called the HASH Network Working Group. This Working Group will constitute those who will build and grow the Network. Building the Network will be a collaborative effort between the Founding members of the HASH Network and the HASH Consortium.

Commitments for the working group members will include but not be limited to:

- Monthly meetings to discuss and shape the Network
- Sharing communications from HASH
- Sharing about their own work
- Offering support to Network members in their region

The Working Group's meetings will begin in early 2023.

7. GRANT EXPECTATIONS

The final session of Day 3 was a short presentation on the deliverables of the grant. Sub-grantees were informed about the milestones they were expected to attain and the timelines within which this was expected.

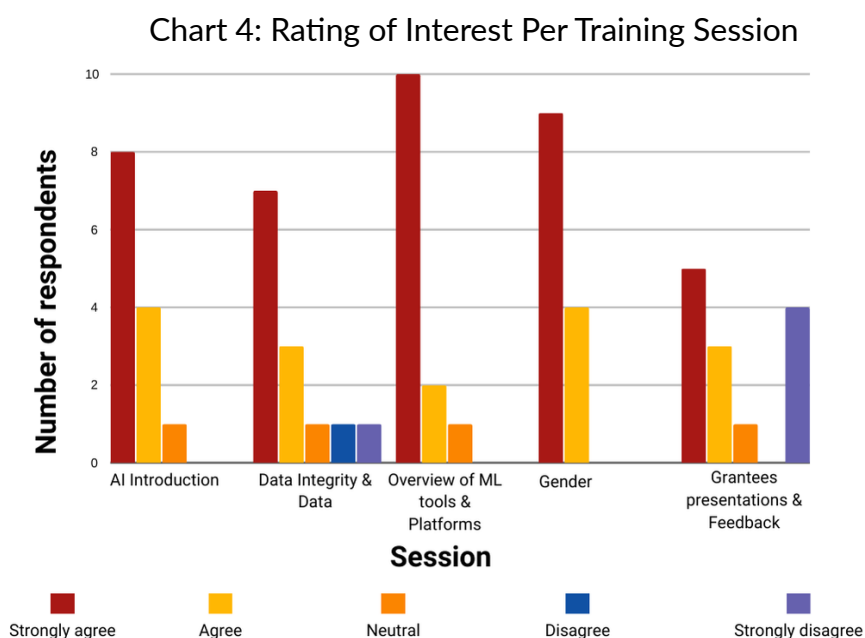
8. SUBGRANTEE FEEDBACK ABOUT THE INCEPTION MEETING

8.1 Session Reviews

The sub-grantees were invited to provide anonymous feedback on the sessions they participated in. This feedback will be used to evaluate the effectiveness of the training and networking sessions to identify areas that need improvement. The feedback will be used by the consortium to improve future training sessions and to ensure that the sub-grantees are receiving the support they need to achieve their goals.

8.1.1. Rating of Interest for each training session

The table below presents the number of times a session was voted as interesting by the sub-grantees. This information can be used to tailor future training sessions to better meet the needs and interests of the sub-grantees.



According to the sub-grantees' feedback, the session on the overview of ML tools and platforms was the most intriguing, indicating a strong interest in practical applications of machine learning.

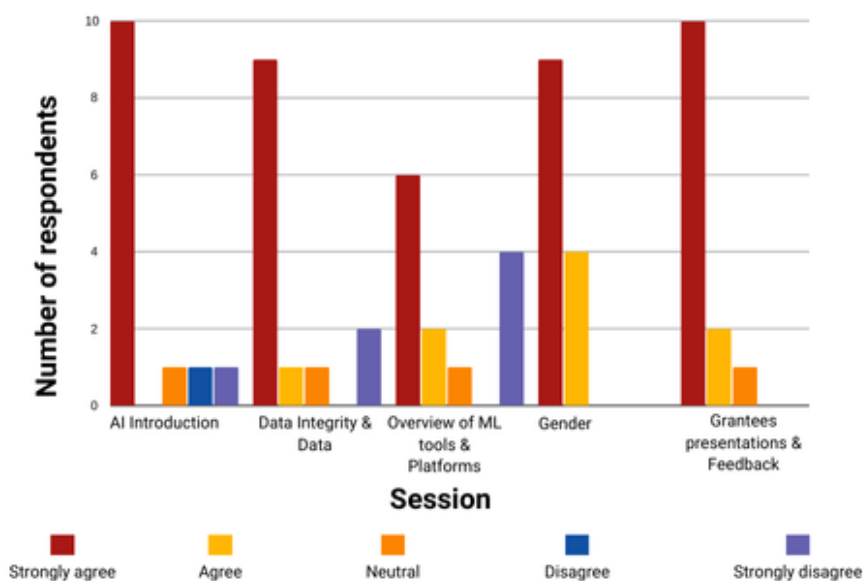
This was followed by the session on Gender, highlighting the importance of addressing diversity and inclusion in the field. This also points to the fact that the sub-grantees learned new concepts during this training. The Introduction to AI session also received attention, showing a desire to understand the fundamental concepts of the technology.

Finally, the Grantees' presentations and feedback session was the least liked. This could possibly be attributed to the fact that the session overrun its time and some presentations had to be made early the next morning with fewer experts present to give feedback.

8.1.2. Perceived relevance of the Training Content.

The sub-grantees were asked to evaluate the relevance of each training topic. The topics of AI introduction, grantee presentations and feedback received the highest ratings for relevance, followed by Data integrity and Data and Gender. The least relevant topic, according to the sub-grantees, was the overview of ML tools and platforms.

Chart 5: Rating of the Perceived Relevance of Training Content to the Subgrantee's Work



8.2. What the sub-grantees said stood out for them from the Inception meeting.

Figure 8: Infographic of quotes from the sub-grantees on their highlights from the Inception meeting



8.3. Suggestions on aspects to consider for future training sessions.

- i. More time on networking.
- ii. Increasing the practical sessions
- iii. Detailed feedback on the various presentations of the sub-grantees.
- iv. More hands-on practical sessions.
- v. Expert training from sub-grantees themselves, because they are around and you can always go back to them for follow up.
- vi. More suggestions to the sub-grantees during presentations rather than questions.
- vii. The experts could have given more attention to actionable feedback to the sub-grantees instead of employing the VIVA mode.
- viii. A tour.

8.4. Topics to consider for future trainings

- i. Image processing and computer vision
- ii. Deployment of ML Models
- iii. Possibility of having practical sessions, such as working with existing data
- iv. Data privacy and integrity
- v. Deployment of the models in the websites or phone app
- vi. Best ways of accessing data from organizations
- vii. Responsible AI
- viii. AI for areas that are unreachable (AI for the majority - dumb phones)
- ix. Evaluations and testing techniques/approaches in AI.
- x. Cybersecurity; Innovation and Entrepreneurship

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APPENDIX 1 : SUMMARY OF SUBGRANTEES

SUB-GRANTEE	COUNTRY	THEME	STUDY TITLE
mDoc Healthcare	Nigeria	STI	Harnessing the power of Artificial Intelligence to augment patients' knowledge, understanding and behaviors with Sexually Transmitted Infections
Addis Ababa Science and Technology University	Ethiopia	STI	Sexually transmitted disease monitoring and assistance tool design in Ethiopian higher education institutes.
James Bumba	Uganda	Maternal Health	Prediction of miscarriages among women seeking antenatal care in Uganda: A machine learning approach.
Pan African Information Communication Technology	Namibia	Maternal Health	Machine Learning for identifying teenage patients at risk of gestational hypertension
Makerere University	Uganda	Maternal Health	A Machine Learning-aided Platform for Point-of-Care Pregnancy Risk Assessment from 2D Ultrasound
The Medical Concierge Group	Uganda	HIV	Using Machine Learning and Artificial Intelligence (AI) modeling to identify high-risk sub-population eligible for PrEP and willing to pay for the services.
Muhimbili University of Health and Allied Sciences	Tanzania	HIV	Artificial intelligence for screening of TB among people living with HIV
University of Ghana, Legon	Ghana	Adolescent SRH	Utilizing AI to Promote Sexual and Reproductive Health Outcomes for Adolescents with Disabilities in Ghana
University of Embu	Kenya	Adolescent SRH	A Chatbot to enhance HIV testing, status awareness, and status disclosure among adolescent boys and girls and young men and women in Kenya
Mwavu Rogers	Uganda	Adolescent SRH	Leveraging Artificial Intelligence techniques to inform choice of modern contraceptives among adolescent girls and young women.

PICTORIAL

