Building Trust in Science: The Role of Open Science and Science Literacy

The African Academy of Sciences

Dr Peggy Oti-Boateng
Executive Director-The African Academy of Sciences

Vision, Mission and Core Values

The African Academy of Sciences envisions transformed lives through science. Its renewed mission is to leverage science, technology, and innovation for sustainable development. AAS is guided by core values of integrity, diversity, excellence, empathy, collaboration, and fairness. These principles shape the organization's approach to recognizing scholars, providing advisory services, and implementing key STI programs across Africa.

Vision

Transformed lives through science

Mission

Leverage science, technology and innovation for sustainable development

Core Values

Integrity, Diversity, Excellence, Empathy, Collaboration, Fairness

Mandate

Recognize excellence, provide advisory & think tank functions, implement STI programs

African Academy of Sciences : Our Journey towards the Africa we want

Thematic Focus Areas

1

People

Providing an enabling environment for learning and growth, focusing on cultivating talent and capability in science, technology and innovation across Africa.

2

Partnership

Nurturing strategic partnerships to expand collaborations, enhance visibility, and diversify funding sources to support scientific research and innovation in Africa.

3

Excellence

Supporting the best people, institutions, and programmes to undertake relevant research, fostering knowledge sharing and skill development in the digital

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Select Research Support Projects at the AAS to promote Open Science

1. Developing Excellence In Leadership Training In Science (DELTAS Africa)

This was a **US$100 million** programme that supported African-led development of world-class researchers and scientific leaders in Africa.

Objective: To produce researchers with the capacity to publish and lead locally relevant and high-quality research to impact health science, policy, and practice in Africa.

Funder

Wellcome Trust and the UK's Department for International Development (DFID) and the New Partnership for Africa's Development (NEPAD)

DELTAS Africa 1 program outcome

DELTAS Africa awardees

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£5.5 million

MALI

- Developing Excellence in Leadership and Genetic Training for Malaria Elimination in Sub-Saharan Africa (DELGEME)

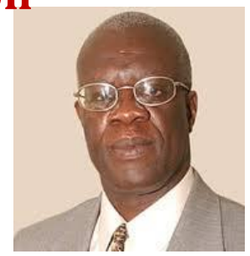
USTT Bamako

£4.6 million

£4.8 million

UGANDA

- Makerere University UVRI Centre of Excellence for Infection & Immunity Research and Training (MUII-plus)
- THRIVE to Research Excellence (THRIVE-2)



Makerere University

SENEGAL

- Malaria Research Capacity Development in West and Central Africa

£7.3 million

Universite Cheikh Anta Diop de Dakar

£8 million

KEMRI Wellcome TRP & APHRC

£6.4 million

KENYA

- Initiative to Develop African Resea Leaders (IDeAL)
- Consortium for Advanced Research Training in Africa+ (CARTA+)

COTE D'IVOIRE

- Afrique One- African Science Partnership for Intervention Research Excellence (Afrique One-ASPIRE)

£6.3 million

Centre Suise Recherche Scientifique

£7.3 million

University of KwaZulu-Natal

£4.1 million

ZIMBABWE

- AMARI: African Mental Health Research Initiative

University of Zimbabwe

GHANA

- WACCBIP-Wellcome Trust DELTAS Programme

£5.1 million

University of Ghana

SOUTH AFRICA

- Sub-Saharan African Network for TB/HIV research Excellence (SANTHE)
- Sub-Saharan Africa Advanced Training Programme Leadership and Excellence in Biostatistics

£3.5 million

University of **Witwatersrand**

2.The African Research Initiative for Scientific Excellence (ARISE) Programme

Guiding Principle

Broaden and strengthen Africa's science base through open and direct funding for young African researchers to contribute to knowledge-based and innovation-led continental transformation of Africa.

Specific objectives:

- Enhance the capabilities of emerging African research leaders committed to a research and teaching career in Africa.
- Strengthen institutional research management and support systems to enable pan- African research to thrive.
- Support the generation of cutting-edge research in contribution to the transformation of Africa into a knowledge-based and innovation-led continent and towards the transformation of lives in African through science.

Select ARISE grantees

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Dr. Alassane Assani Seidou

Project: Mobile App for Cattle Feed

- **Goal:** Improve cattle productivity with balanced, low-cost feeds
- **Solution:** Mobile app for climate-sensitive feed rations in West Africa
- **Impact:** Increased livestock productivity, reduced methane emissions

Dr. Emna Harigua

Project: Artificial Intelligence

- **Goal:** Leverage AI in healthcare for cost-effective, rapid solutions
- **Research:** Combines bioinformatics & AI in computer-aided drug discovery
- **Focus:** Targeting infectious diseases like Leishmaniases and Malaria
- **Impact:** Faster drug discovery, cost savings, improved healthcare outcomes

Dr Geoffrey Onaga

Project: African Rice Pan-Genome

- **Challenge:** Managing rice diseases under climate stress
- **Research:** Identifying genes for disease resistance in African rice
- **Impact:** Reduced crop losses, higher farmer incomes, climate resilience

Dr Celimphilo Mavuso

Project: Plant Biotechnology

- **Focus:** Boosting rural fruit & vegetable production in Eswatini
- **Method:** Plant tissue culture and agro-waste-based growing medium
- **Impact:** Lower production costs, enhanced food security

WHY OPEN SCIENCE AT ACADEMY OF SCIENCES

- Enhances agenda setting through co-reation, co-implementation and MEL. Increase the quality and reproducibility science
- Makes scientific knowledge more accessible
- **Increase visibility of the African research and innovation**
- Increase transparency of scientific process
- Strengthens connections with indigenous knowledge and society

Open Science for the People, Planet & Prosperity

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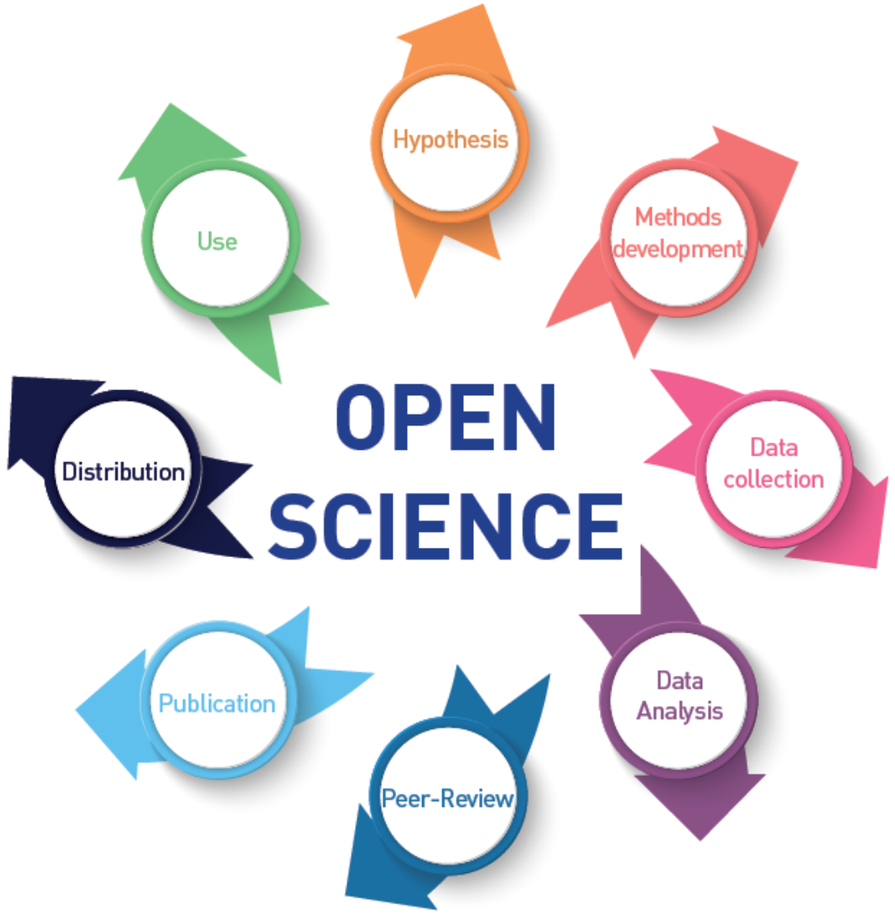

Open Science is increasingly recognized as a critical **SDGs accelerator and African Union Agenda 2063.**

Open Science can be a true game changer in **bridging the science, technology and innovation gaps** between and within countries and fulfilling the **human right to science**.

The science we need in 21st century to fight inequalitiesand enhance trust in science

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Urgency to address the global pressing social economic and environmental challenges

Importance of timely and free access to evidence based scientific data, publications, information

Importance of scientific collaborations and sharing of information at all levels to enhance equitable partnership and trust

Importance of science-policy-society dialogue

Need for Open Science

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Science Literacy: Empowering the Public

1 Critical Thinking

Science literacy equips individuals with the ability to evaluate information critically and identify misinformation, fostering informed decision-making.

2 Informed Decision-Making

Science literacy helps people make informed choices about health, environment, and other important issues. This leads to active citizenship and engagement in scientific debates and policy discussions.

3 Reduced Susceptibility to Pseudoscience

Science literacy provides protection against false claims and conspiracy theories, promoting a healthy skepticism towards unfounded information.

Pillars of Open Science

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Open Access Publications

Ensure that research findings are readily accessible to everyone, enabling broader dissemination and utilization of scientific knowledge.

Research Integrity

Focuses on responsible conduct, ethical practices, and reproducibility, fostering trust and confidence in scientific findings.

Open Science Education

Develops educational resources and training programs to equip researchers, educators, and the public with the skills and knowledge needed to participate in open science.

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Challenges of Open Science

1

Resource Constraints

Limited funding and time constraints can pose significant hurdles for researchers, hindering the adoption of open science practices.

2

Quality Control

Ensuring the quality and reliability of open access publications and data requires robust quality control mechanisms and standardization efforts.

3

Intellectual Property

Balancing the need for open access with intellectual property rights and data security concerns requires careful consideration and appropriate legal frameworks.

Interconnection Between Open Science and Science Literacy

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1

Accessibility

Open science practices make scientific knowledge accessible to a wider audience, contributing to a more scientifically literate population.

2

Engagement

Public engagement with science fosters a deeper understanding of scientific concepts and methodologies, enriching science literacy.

3

Collaboration

Open science fosters collaboration between researchers and the public, leading to innovative solutions for global challenges.

RECOMMENDATION:

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AAS-UNESCO Working Together to Accelerate Open Science Implementation in Africa

- Awareness raising with its members as ambassadors of open science
- Capacity building on open science
- Promotion of collaboration in the spirit of open science
- Valorise Africans innovations on the open science platform
- Working with and updating the African Platform on Open Science
- Promoting open science as a tool for innovation and technology transfer for transforming lives through science in Africa
- Need to create repository of scientific data and information at AAS to help to leapfrog in research and innovation on the continent. Take ownership of Arica's scientific data and information

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Thank you

Contact us

communication@aasciences.africa

www.aasciences.africa

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