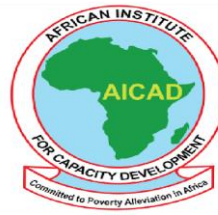




# Kenya National Committee for Open Science Dialogue



**Venue: Chandaria Hall, 6th Floor University of Nairobi Tower**

**University of Nairobi, 20 September 2023.**

## Open Science Platforms' role in promoting Open Science in East Africa

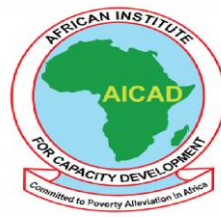
**Prof Muliaro Wafula PhD., FCCS, FCSK**

*Associate Professor: JKUAT*

*Chair: CODATA Kenya*

*Lead Scientist: AOSP EA node*

*Adjunct Professor, AICAD*



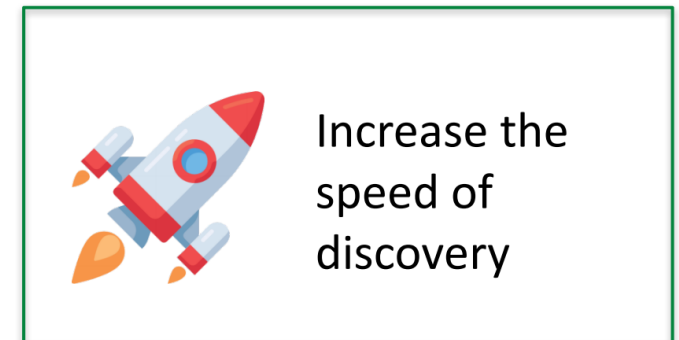
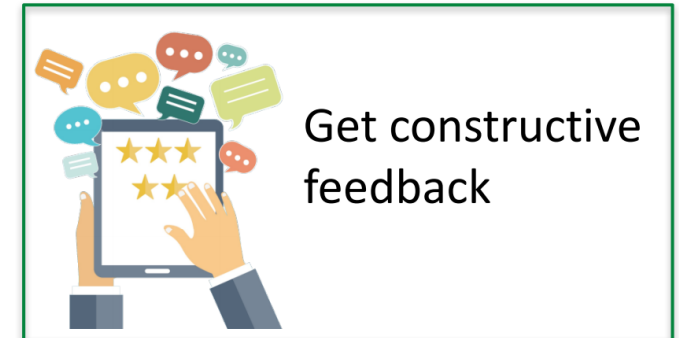
# Why Open Science?

- significant amounts of research still locked behind paywalls and only accessible at a high cost, this creates a research and innovation divide. Open Science and Open Access can democratize higher education, by providing equitable access to literature resources to academic communities.

## AOSP vision for EA region

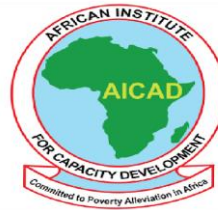
- more citations, media attention, potential collaborators, job opportunities, and funding opportunities
- open access journals- more citations
- open research awards - incentive.
- data and research materials stored in independent repositories and preserved for future.
- easier for researchers to connect with one another, easy access to novel data and software resources.

## Why transparency?





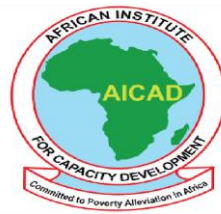
# Best Practices



- ✓ Promote open science culture through training and awareness raising
- ✓ Develop cloud computing facilities that provide networked computation, data access and analysis tools
- ✓ Promote science diplomacy
- ✓ Encourage citizen science
- ✓ Support open collaboration through ICTs
- ✓ Support Open Innovation
- ✓ Promote open software code
- ✓ Adopt Findable, Accessible, Interoperable and Reusable (FAIR) Data Principle

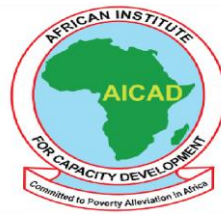
## Implementers:

Government, Policy Makers, Universities, Scholarly Societies, Publishers, Research Institutes, Research Funding Agencies, Repositories, Libraries, Archives, and Researchers



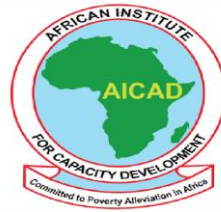
# The African Open Science Platform (AOSP) with HQ in SA (<https://aosp.org.za/>)

- It has 3 regional nodes:
  1. Egyptian National Authority for Remote Sensing and Space Sciences (NARSS) is the Northern African Node based in Egypt;
  2. **The African Institute for Capacity Development (AICAD) is the East African Node based in Kenya,** and
  3. The UbuntuNet Alliance is the Southern Africa Node based in Malawi



# AOSP key objectives

- Create a platform, with the potential to be a powerful lever of social, cultural and scientific vitality and of economic development.
- put African scientists at the cutting edge of contemporary, data-intensive science as a fundamental resource for a modern society
- Enable researchers to access a wide diversity of data streams, which, when integrated, reveal deep patterns in complex phenomena.
- Make science a more public enterprise that engages actively with business, policymakers, governments, communities and citizens as knowledge partners
- facilitate data-intensive, solutions-oriented research, bringing scientists and non-scientists together as knowledge partners in open networks of collaborative learning and problem solving

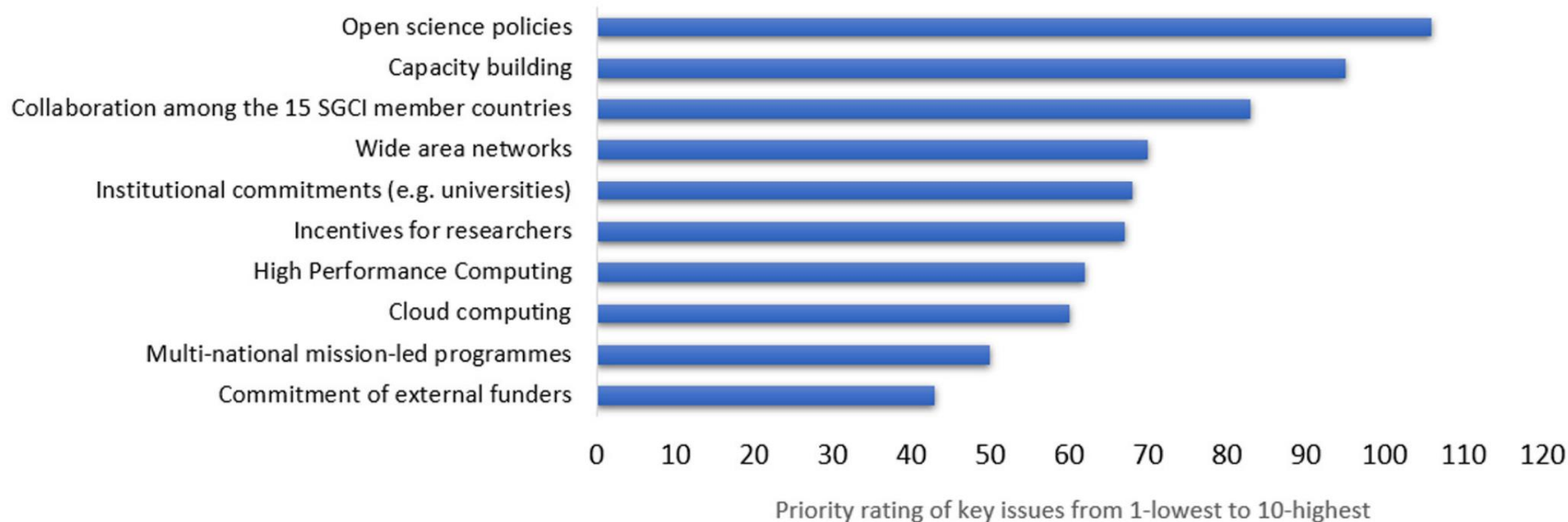


## Key Objectives for National Dialogue on Open Science in Kenya:

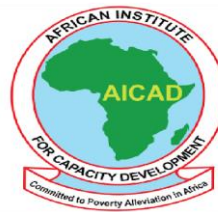
- Recognize the challenges that exist in the implementation of open science
- Define the next steps for implementing national open science initiative.

# Priority ranking of OS issues that contribute to economic and social development in Africa

Cumulative rating of 10 key issues contributing to Collaborative Open Science as per 13 SGCI member countries in Africa namely: Kenya, Burundi, Uganda, Tanzania, Côte d'Ivoire, Botswana, Ghana, Zambia, Mozambique, Sudan, Sierra Leon, Malawi and Namibia

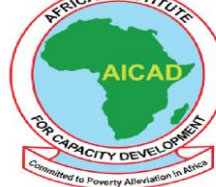


Ref: Mwelwa, J, et al. 2020. *Developing Open Science in Africa: Barriers, Solutions and Opportunities*. *Data Science Journal*, 19: 31, pp. 1–17. DOI: <https://doi.org/10.5334/dsj-2020-031>



## AOSP EA node steps towards OS implementation

- ✓ Stakeholder mapping and analysis
- ✓ Mapping of open science infrastructure landscape in the region: Policy, hardware, software, skills
- ✓ Federate hardware, software and operational instruments to bridge gaps
- ✓ Data infrastructure management and support
- ✓ Develop open source software tools for open science: Data collection, analysis, visualization tools
- ✓ Training scientists on data stewardship (plans)
- ✓ VizAfrica conference and summer school
- ✓ Webinars & seminars
- ✓ Establish a data publishing journal
- ✓ Development of data APIs, DOIs
- ✓ Advocacy and awareness
- ✓ Promote FAIR principles
- ✓ Collaborate with publishers and funders
- ✓ Train on data formats in various domains e.g. Agriculture, health, climate resilience



# Open Science drivers in Kenya

## **Other actors involved – Government**

Office of the Deputy President, Kenya National Bureau of Statistics (KNBS), Office of Controller of Budget, State Department of Housing and Urban Development, Department of Surveys, Department of Resource Surveys and Remote Sensing (DRSRS), Jomo Kenyatta University of Agriculture and Technology, Kenya Agricultural and Livestock Research Organization (KALRO), Kenya Meteorological Department (KMD), National Drought Management Authority (NDMA), National Disaster Operations Centre, National Environment Management Authority (NEMA), National Land Commission (NLC) and Intergovernmental Relations Technical Committee (IGRTC).

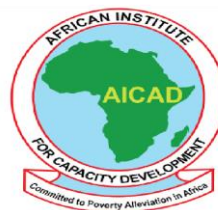
## **Other actors involved – CSOs, private sector, working groups, multilaterals etc.**

Local Development Research Institute (LDRI), Global Partnership for Sustainable Development Data (GPSDD), ESRI, Group on Earth Observations (GEO), Digital Earth Africa (DE Africa), Geospatial Society of Kenya (GeoSK), Women in GIS, Kenya ICT Action Network (KICTANet), Kenya Private Sector Alliance (KEPSA), United Nations Development Programme, Food and Agriculture Organization, CODATA, Data Trace International Ltd and LocateIT Ltd.

**Ref: Kenya Open Government Partnership National Action Plan IV**

[https://www.opengovpartnership.org/wp-content/uploads/2021/03/Kenya\\_Action-Plan\\_2020-2022.pdf](https://www.opengovpartnership.org/wp-content/uploads/2021/03/Kenya_Action-Plan_2020-2022.pdf)

| CITIZENS) |                                                                                          |     |           |          |
|-----------|------------------------------------------------------------------------------------------|-----|-----------|----------|
| 8.        | Open Research Data-Open science to accelerate Knowledge creation and Innovation (CODATA) | New | June 2021 | May 2022 |
| 9.        | Development of Data Policies, Data Management Plans for at least five counties           | New | June 2021 | May 2022 |



# Open Educational Resources

- Most universities are yet to offer educational resources, including teaching, learning, and research materials, openly and for free.
- One must be enrolled as a student to access the open learning platforms, which is a barrier for non-students.
- AOSP will promote OERs development and provision



## Summary of African Open Science Policy Framework

(Ref: Wafula et al, 2019)



| Policy Statements |                                                                                                                       | Enabling Practices                                                                                                                                                                                                                                                                                                        | Policy Implementers |   |   |   |   |   |   |   |   |    |    |
|-------------------|-----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---|---|---|---|---|---|---|---|----|----|
|                   |                                                                                                                       |                                                                                                                                                                                                                                                                                                                           | 1                   | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 1                 | Adopt Findable, Accessible, Interoperable and Reusable (FAIR) Data Principle                                          | <ul style="list-style-type: none"> <li>Promote open science culture through training and awareness raising</li> <li>Develop cloud computing facilities that provide networked computation, data access and analysis tools</li> <li>Promote science diplomacy</li> </ul>                                                   |                     |   |   |   |   |   |   |   |   |    |    |
| 2                 | Observe instrumental, procedural and distributive data justice while handling, using and distributing data            | <ul style="list-style-type: none"> <li>Promote open science culture through training and awareness raising</li> <li>Encourage citizen science</li> <li>Support open collaboration through ICTs</li> <li>Develop cloud computing facilities</li> <li>Support Open Innovation</li> <li>Promote Science Diplomacy</li> </ul> |                     |   |   |   |   |   |   |   |   |    |    |
| 3                 | Establish open access to publications through repositories and journals                                               | <ul style="list-style-type: none"> <li>Promote Open Science Culture through Training and Awareness raising</li> <li>Encourage Citizen Science</li> <li>Support Open Collaboration through ICTs</li> <li>Promote Science Diplomacy</li> </ul>                                                                              |                     |   |   |   |   |   |   |   |   |    |    |
| 4                 | Support Submission of data to a repository before submitting the respective manuscript describing the respective data | <ul style="list-style-type: none"> <li>Promote Open Science Culture through Training and Awareness raising</li> <li>Encourage Citizen Science</li> <li>Support Open Collaboration through ICTs</li> </ul>                                                                                                                 |                     |   |   |   |   |   |   |   |   |    |    |
| 5                 | Develop Shared and interoperable data infrastructure                                                                  | <ul style="list-style-type: none"> <li>Develop cloud computing facilities that provide networked computation, data access and analysis tools</li> <li>Support open collaboration through ICTs</li> <li>Support open innovation</li> <li>Encourage citizen science</li> </ul>                                              |                     |   |   |   |   |   |   |   |   |    |    |

### Policy Implementer Key:

**1** -Government, **2** -Policy Makers, **3** -Universities, **4** -Scholarly Societies, **5** - Publishers, **6** - Research Institutes, **7** - Research Funding Agencies, **8** -Repositories, **9** - Libraries, **10** -Archives, **11**- Researchers



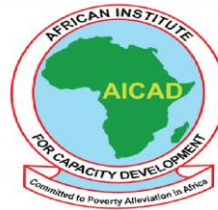


| Policy Statements |                                                                                                                                                                 | Enabling Practices                                                                                                                                                                                                                                                                                                                                        | Policy Implementers |  |  |  |  |  |  |  |  |  |  |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--|--|--|--|--|--|--|--|--|--|
| 6                 | Encourage use of recognized waiver or license that is appropriate for data                                                                                      | <ul style="list-style-type: none"> <li>Promote open science culture through training and awareness raising</li> <li>Promote open software code</li> </ul>                                                                                                                                                                                                 |                     |  |  |  |  |  |  |  |  |  |  |
| 7                 | Public and private funders should adopt obligatory green, gold or a hybrid of green and gold open access policies with their respective implementation measures | <ul style="list-style-type: none"> <li>Promote open science culture through training and awareness raising</li> <li>Support open collaboration through ICTs</li> <li>Develop cloud computing facilities that provide networked computation, data access and analysis tools</li> <li>Support open innovation</li> <li>Promote science diplomacy</li> </ul> |                     |  |  |  |  |  |  |  |  |  |  |
| 8                 | Offer incentives to acknowledge open practices in publications                                                                                                  | <ul style="list-style-type: none"> <li>Promote open science culture through training and awareness raising</li> <li>Promote open software code</li> <li>Develop cloud computing facilities</li> <li>Support open collaboration</li> </ul>                                                                                                                 |                     |  |  |  |  |  |  |  |  |  |  |
| 9                 | Encourage Open peer-review models                                                                                                                               | <ul style="list-style-type: none"> <li>Promote open science culture through training and awareness raising</li> <li>Support open collaboration through ICTs</li> <li>Develop cloud computing</li> <li>Support open innovation.</li> <li>Promote science diplomacy</li> </ul>                                                                              |                     |  |  |  |  |  |  |  |  |  |  |

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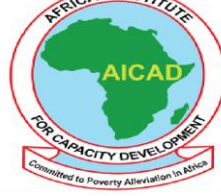
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# Current Project

- Development of Data Repository for Decision Making in MoH- National Vaccine and Immunization Program (NVIP)
  - ✓ Publish APIs
  - ✓ Issue DOIs
  - ✓ Create FIP Communities
- Organizing VizAfrica 2024 <https://datatin.net/vizafrica-conference-and-symposium/> :
  - ✓ Nairobi Jan 29 –Feb 2, 2023: Summer School Training
  - ✓ Main conference Feb 5-7, 2024
- Proposed to host International Symposium on Open Science Clouds (ISOSC) 2024 (Nairobi) see just concluded Beijing ISOSC 2023 <https://codata.org/international-symposium-on-open-science-cloud-2023/>



# THANK YOU