191TH JSPS GAKUSHIN SEMINAR

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Open Science and Open Government:

A paradigm shift towards achieving efficiency, effectiveness and accountability

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Outline

- **Open Science -** three key dimensions of open science namely: open data, open access and citizen science.
- **Open Government-** catalyst for good governance, democracy and inclusive growth
- **Artificial Intelligence-** maximizing benefits of adopting open science and open government.

Open Data

What is Open Data?

- data that is publicly available without any restrictions for usage and distribution and structured in a way that enables it to be fully discoverable, accessible, complete, timely and useable by end users.

- Championing for open data means seeking to realize better quality, reliability, management and accessibility of data of importance to all fields

- We need open Data polices developed and implemented.

Kenya Open Data Instruments

Constitution of Kenya, 2010

Article 35, gives citizens the right to access information

35. Access to information

(1) Every citizen has the right of access to—

(a) information held by the State; and

(b) information held by another person and required for the exercise or protection of any right or fundamental freedom.

(2) Every person has the right to the correction or deletion of untrue or misleading information that affects the person.

(3) The State shall publish and publicise any important information affecting the nation.

Access to Information Act 2016

AN ACT of Parliament that gave effect to Article 35 of the Constitution

PART II—RIGHT TO INFORMATION

4—Right to information.

5—Disclosure of information by public entities.

6—Limitation of right of access to information.

PART III—ACCESS TO INFORMATION

7—Designation of information access officer.

8—Application for access.

JORD Policy

Policy to promote ROI, Collaboration, Innovation, Enable Diverse Studies etc

2.4 Research data and records should be:

a) Accurate, complete, authentic and reliable;

b) Identifiable, retrievable, and accessible;

c) Secure and safe;

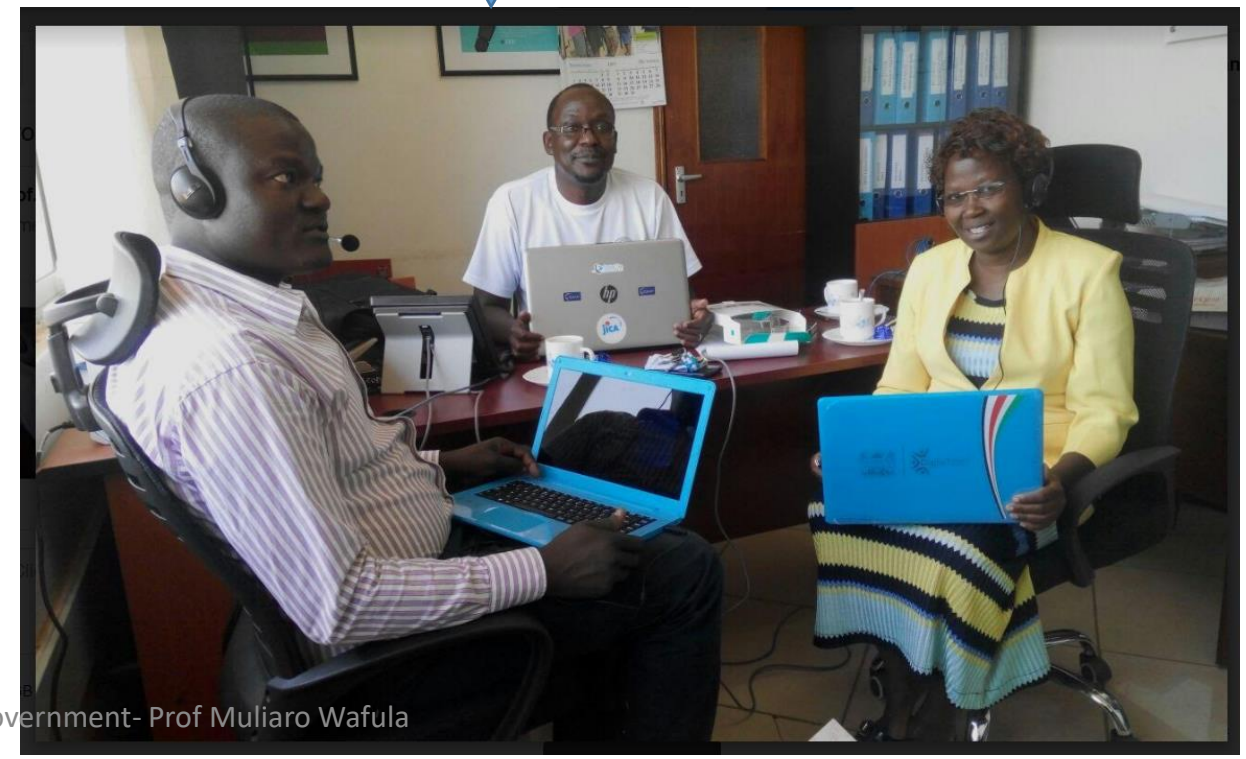
d) Kept in a manner that is compliant with legal obligations and, where applicable, the requirements of funding bodies and the University Policies and regulations

e) Able to be made available to others in line with appropriate ethical, data sharing and open access principles.

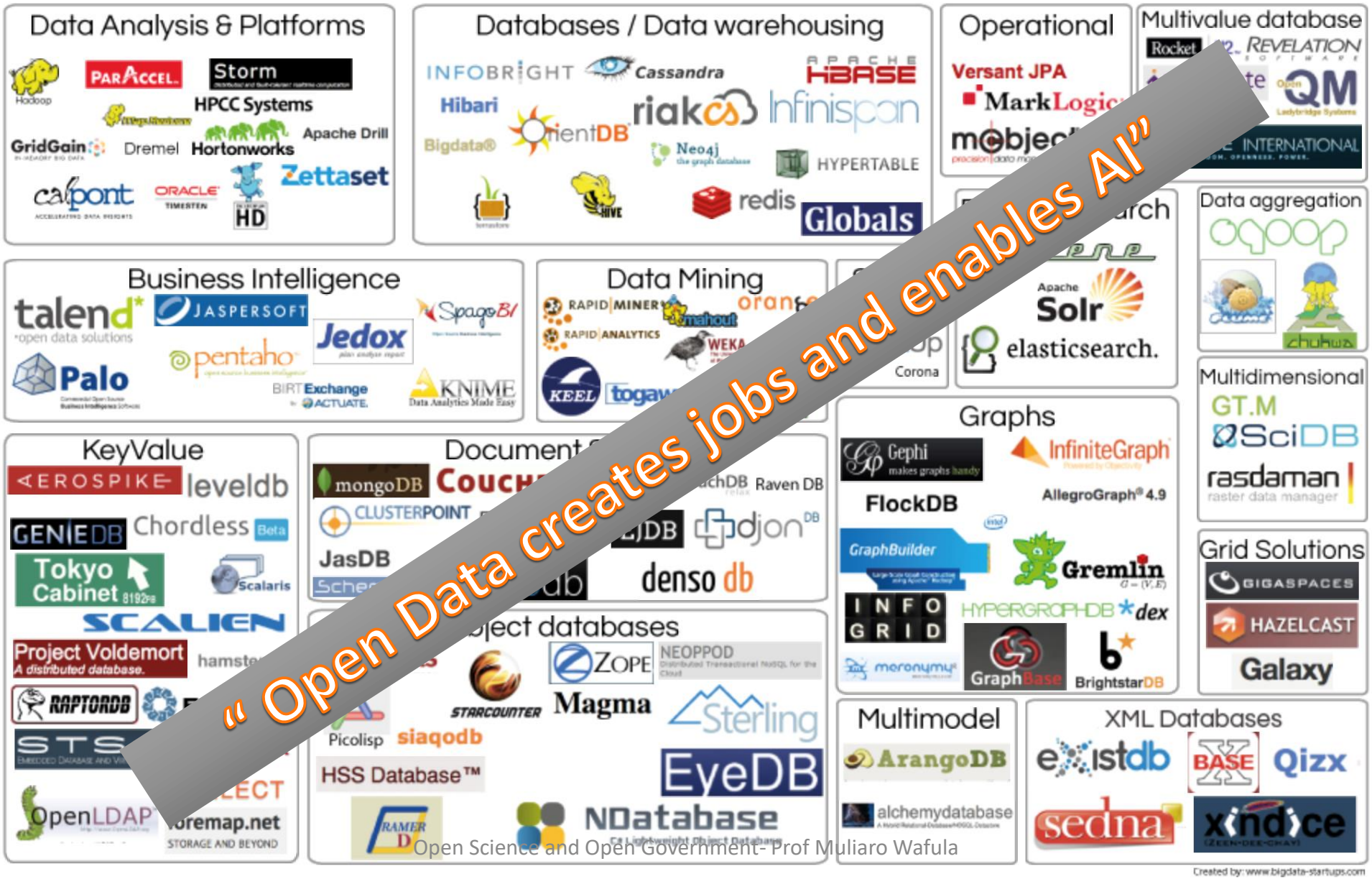
Creating Innovative Videos for Learning Mathematics for Primary Schools

ODSI: JKUAT

To build open data based innovative mobile
To encourage scientists to open their research data for public consumption and use.
To use open data to offer solutions to societal challenges
To engage partners support on the open research data initiative



Power of Open Data to Create Jobs/wealth



Components of Open Science

Characteristics

- open to scrutiny
- accessible
- free
- accessible data- *except for safety, security and privacy*
- open to engagement with other societal actors

(International Science Council (ISC)'s definition)

OS-Contribution to Efficiency and effectiveness

- 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?

OSC
LMU Open Science Center

Increase trust in science, don't waste public resources

Get constructive feedback

Be international and inclusive

Increase the speed of discovery

What is it in for the Public?

- Research transparency
- Access to research of societal importance
- Greater awareness of societal challenges

What is it in for Funders?

- Better Return on Investment
- Fast exchange of ideas
- Speed up innovation

What is it in for Institutions?

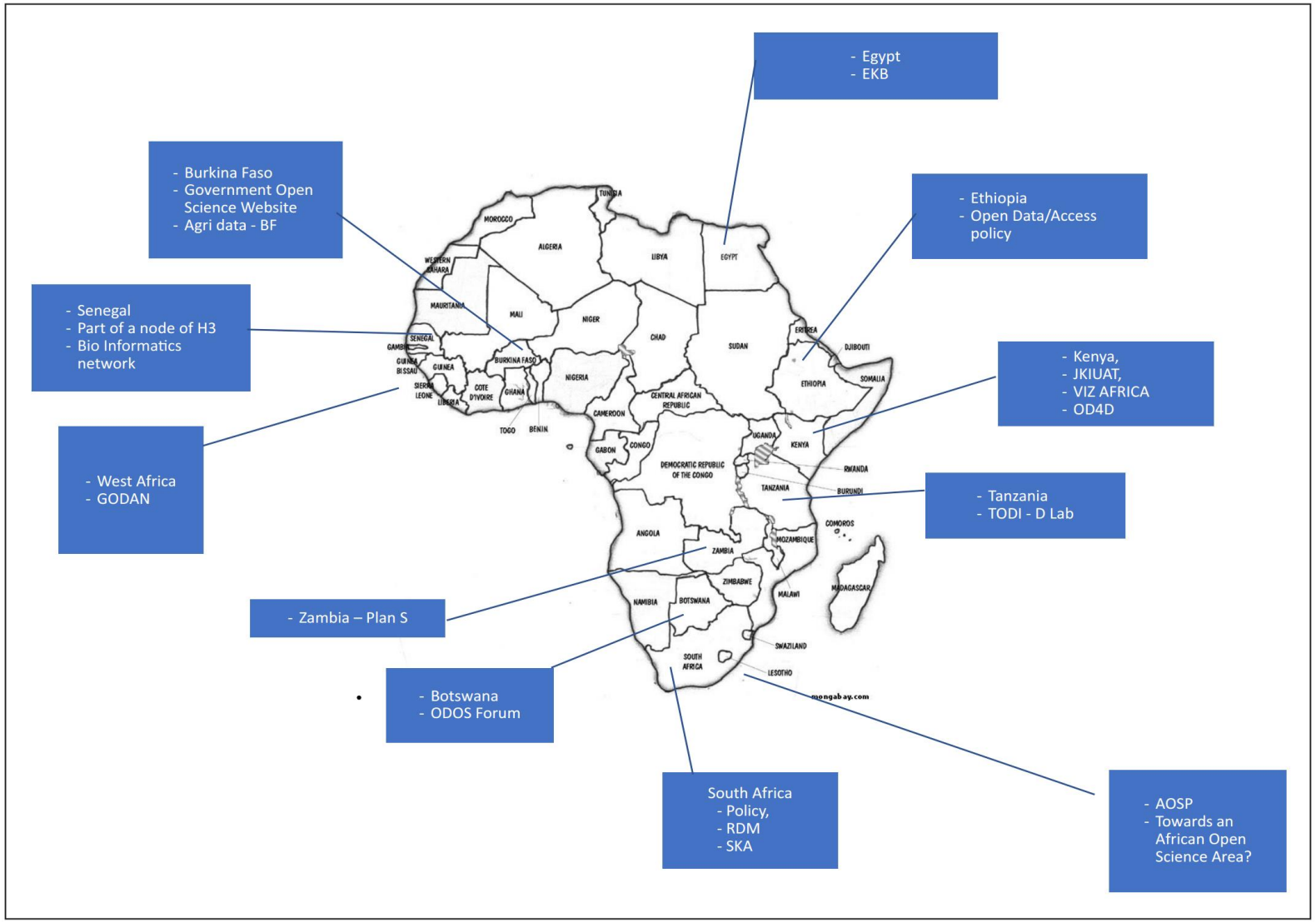
- Comply with funders policies
- Optimising visibility and impact
- Reducing duplication of effort and promote reproducibility

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

Examples of Open Science Initiatives in Africa



International Open Science projects in Africa

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

- ✓The H3ABionet project
- ✓South African National Biodiversity Institute (SANBI), a major node of the Global Biodiversity Information Facility. It hosts biodiversity information to make it freely available on the internet so that policy makers, managers and researchers can make well-informed decisions that contribute to sustainable development.
- ✓Data First – the only African database that has the CoreTrustSeal of the International Science Council's World Data System

- ✓African Academy of Sciences (AAS) Open Research – a platform for rapid publication and open peer review for researchers.
- ✓The Square Kilometre Array (SKA) project involves 8 African national partners (South Africa, Botswana, Ghana, Kenya, Madagascar, Mozambique, Namibia, Zambia)
- ✓The Indigenous Knowledge and Climate Change Adaptation Research Project among the Griqua and Nama peoples in South Africa

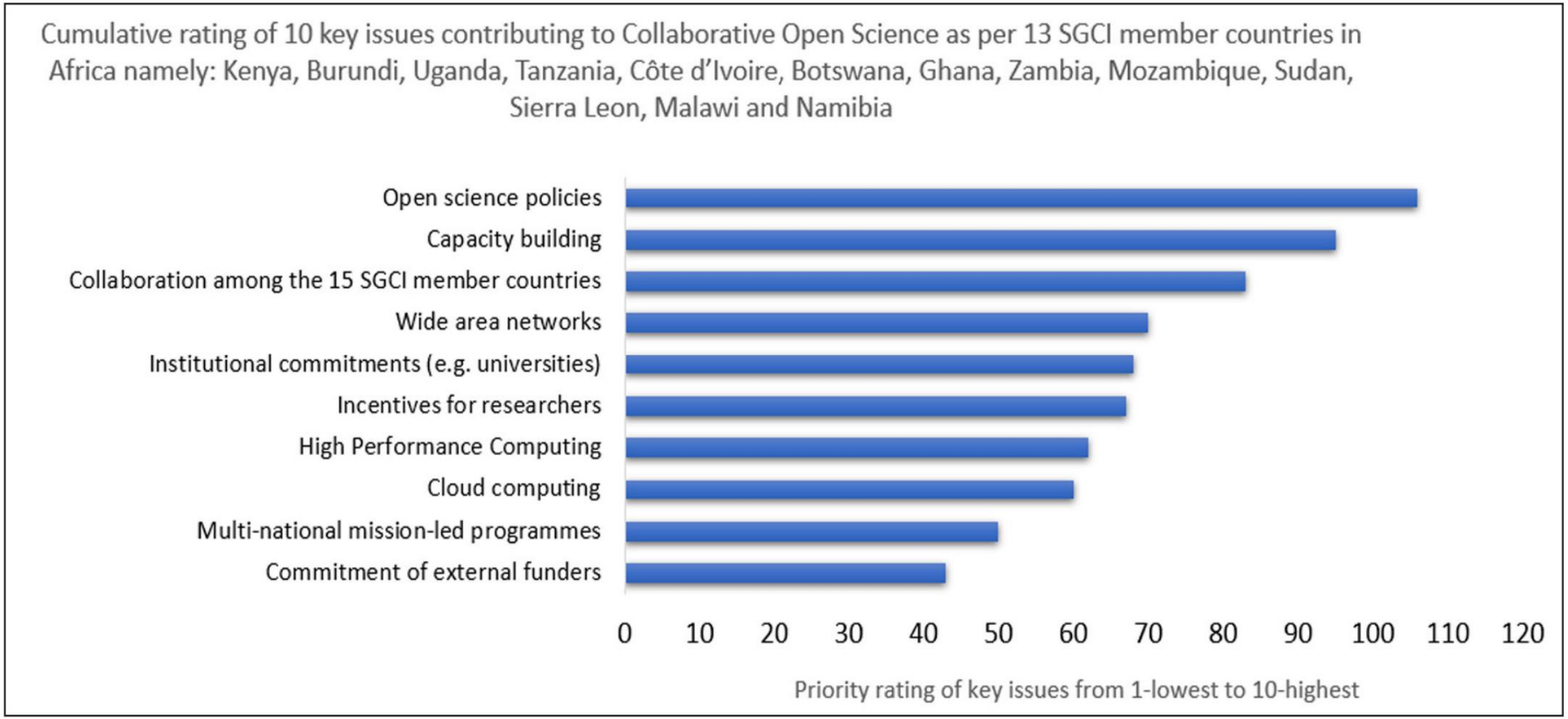
The African Open Science Platform (AOSP) with HQ in SA (https://aosp.org.za/)

- 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

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



Open Government

Open Government:

- a culture of governance that promotes the principles of transparency, integrity, accountability and stakeholder participation in support of democracy and inclusive growth.

Open State:

- when the executive, legislature, judiciary, independent public institutions, and all levels of government – recognizing their respective roles, prerogatives, and overall independence according to their existing legal and institutional frameworks – collaborate, exploit synergies, and share good practices and lessons learned among themselves and with other stakeholders to promote transparency, integrity, accountability, and stakeholder participation, in support of democracy and inclusive growth.

Shifting trend to open government

- Countries are increasingly acknowledging the role of Open Government as a catalyst for good governance, democracy and inclusive growth.

Why Open Governance?

- To improve:
  - transparency,
  - accountability,
  - effectiveness,
  - responsiveness,
  - citizen participation,
  - prevent and fight corruption, and
  - increase citizen trust of the public institutions

Government & Citizens Relationship

- **Two-way dialogue**: In past decades, the relationship between governments and citizens was characterized by a mere sharing of information with citizens. Recent initiatives stress the active two-way dialogue among the government. In this new vision of the public sector, citizens are no longer passive receptors of government information, to the contrary, governments and citizens engage in a joint construction of value.
  - Engaging citizens, civil society organizations and the private sector as partners in the policy cycle helps ensure that their needs are identified and responded to, thereby leading to higher user satisfaction.

Kenya Open Government Partnership National Action Plan IV

(https://www.opengovpartnership.org/wp-content/uploads/2021/03/Kenya_Action-Plan_2020-2022.pdf)

SUMMARY OF COMMITMENTS

Commitment number and Title	Commitment Overview	Lead Implementing Organization(s)	Other actors involved- Government	Other Stakeholders
1. Beneficial Ownership	Publish a central public register of beneficial ownership information of companies operating within the Republic of Kenya	Office of the Attorney General- Business Registration Services	PPRA, National Treasury, Financial reporting Center, Ethics and Anti- Corruption Commission	TI-Kenya, HIVOS, NTA, KCSPOG, KEPSA
2. Open Contracting	Implement an interoperable end to end e-government system adopting the Open Contracting Data Standard (OCDS), to cover all stages of public procurement in Kenya.	Public Procurement Regulatory Authority	Senate of Kenya, Council of Governors (CoG), County Assemblies Forum (CAF), Commission on Administrative Justice (CAJ).	Development Gateway, Hivos, Local Development and Research Institute (LDRI), MAPACA Trust, Twaweza East Africa, Youth Agenda, National Taxpayers Association, Transparency International (TI)-Kenya.

3. Open Data for Development	Lower the barrier and increase access to timely, affordable, up-to-date, and accurate data for socio-economic development, evidence based decision-making and enhanced service delivery.	Kenya Space Agency, ICT Authority, Council of Governors, Office of the Controller of Budget,	Kenya National Bureau of Statistics, Department of Resource Surveys and Remote Sensing (DRSRS), Kenya Meteorological Department (KMD), National Drought Management Authority (NDMA), National Disaster Operations Centre, National Land Commission (NLC)	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
4. Public Participation and Legislative Openness	Mainstream meaningful public participation in all developmental spheres in the country thereby ensuring that the voice of the public counts and shapes the eventual developmental outcome for ownership.	The Senate of the Republic of Kenya	Office of the Deputy President, Council of Governors (CoG), National Assembly, County Assemblies Forum (CAF)	Mzalendo Trust, Westminster Foundation for Democracy (WFD).

5. Improving Public Service Delivery Performance	Apply the sub-national survey instrument -the County Peer Review Mechanism (CPRM) to improve public service delivery performance by ensuring sustained citizens' engagements with their county governments.	NEPAD/APRM, Council of Governors	The Parliament of Kenya (The Senate and National Assembly),	LDRI, TI, Mzalendo, TISA, Katiba Institute, IGTRC
6. Access to Information	Seeking to ensure the effective implementation of the Access to Information Act for the realization of citizens' right of access to information by leveraging on the use of technology to enhance proactive disclosure and promote effective records management	Commission on Administrative Justice (CAJ)	Ministry of ICT, Kenya National Archives & Documentation Service, (KNADS)	ARTICLE 19 Eastern Africa, Mzalendo Trust, TISA, IBP

7. Access to Justice	Seeking to expand Access to Justice through the implementation of Legal Aid Act and Alternative Justice Systems Policy	The Judiciary	Judiciary (Chief Registrar of the Judiciary or the National Council on the Administration of Justice), National Legal Aid Service, County Government of Mombasa	Kituo cha Sheria, Namati, Katiba Institute, Mzalendo, CICC, Haki Yetu
8. Building Open Government Resiliency	Build institutional support of OGP by ensuring engagement of broader interest groups across Public institutions, Private sector, Academia, Civil Society and strengthen multilateralism with other OGP participating countries	Office of the Deputy President, Commission on Administrative Justice	MDA's, Senate, National Assembly, Council of Governors (CoG), County Assemblies Forum (CAF), Judiciary, Ministry of Foreign Affairs	IDS-UON, Universities and Colleges, CSO's

Aspirations of the OGP National Action Plan IV

1. Raise the threshold of ensuring companies' real owners and their information is available for public strutiny within internationally recognized data standards
2. Government procurement processes remain open, transparent, and accessible to all across Government and in Champion Sub-National Governments
3. Data for developmental decisions-making and action is timely, available, accessible and maintained in open standards
4. Deepening democracy by ensuring the process of law and policy within the legislature is open to public engagement and participation

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5. Public servants and duty bearer are held to high-performance standards by citizens
6. Proactive disclosure and access to information by citizens, especially during these challenging time of COVID 19
7. Access to justice remains a high priority, especially for indigents, without delays or denial.
8. The culture of open government is entrenched within public service in Kenya and across the African Continent.

(Ref: Extracted from Forward written by then The Deputy President and currently the President of the Republic of Kenya H.E. Dr William Ruto)

Points to Note

- Since public procurement accounts for an overwhelming share of public spending, open and transparent procurement processes increase value for money in public spending.
- Open government promotes the appropriate use of public resources.
- Tackling corruption is notoriously difficult, but if information is increasingly reaching citizens and the media, and officials are acknowledging its accuracy, that can help fight corruption.
- Over time, with a holistic approach tailored to the context, open government may help change behaviors so that public resources are directed not to the pockets of individuals but rather to the common good.

Artificial Intelligence: maximizing benefits of adopting open science and open government.

- If used correctly and used together with human management and decision-making, governments can also use AI to address development challenges
- AI can potentially contribute $13 trillion to the global economy by 2030, according to a 2018 report by McKinsey & Company. At least 50 governments have developed or are in the process of developing an AI strategy
- In most of the World Bank's client countries, a lack of awareness of the potential of AI, inadequate foundational digital technologies, low availability or quality of data, and low access to digital skills, are the major barriers to AI adoption

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- AI policy incorporating legislative foundations, institutional arrangements and a governance framework for the use of AI could provide the necessary enabling environment.
- To manage the risks and maximize the opportunities of adopting AI in the public sector, government needs to prepare an AI policy and governance frameworks to help guide the ethical use of AI and to provide clarity about AI principles and priorities, such a framework may also be grounded in legislation so that the rights of data providers are clear and protected, and the ethical use of data for algorithms and machine determined processes are specified in law and regulations.
- Three key concepts that constitute the building blocks for adopting AI are:
  - ✓ a whole-of-government architecture;
  - ✓ interoperability; and
  - ✓data standardization.

Examples of AI use cases in the public sector

- Citizen Engagement.
  - The introduction of AI tools such as chatbots that answer citizen queries, AI was able to analyze citizen sentiments
- Robotic Process Automation (RPA)
  - Cost-Effective
  - Accuracy & Quality -RPA offers improved services to processes that have a high probability of human error, thereby increasing accuracy
  - Consistency- Robotics is a safe, non-invasive technology each time and every time
  - Improved Analytics- Having access to error-free, accurate data
  - Increased Employee Productivity
  - Increased Customer Satisfaction - Delivering better quality of work with high accuracy
  - Faster- Robots handle and execute a larger amount of work in a shorter time than humans

Thank you