



Annual Activity Report 2024

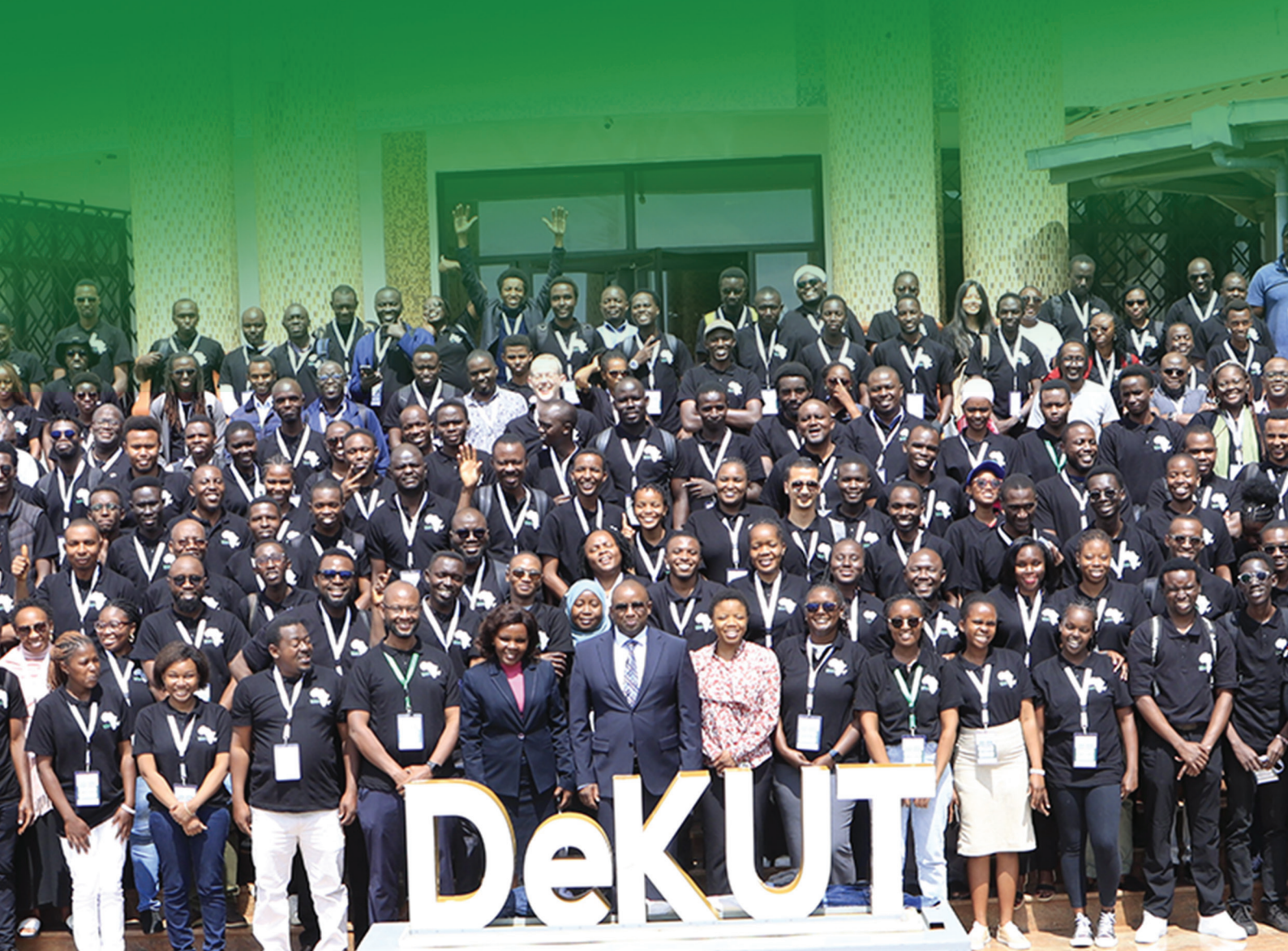


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Foreword

Data Science Africa (DSA) is a grassroots organisation founded in 2015 to provide quality training in data science, machine learning, and emerging technologies, with the goal of leveraging these disciplines to develop solutions to Africa’s unique challenges. The organisation was established in response to the limited exposure that students at African universities had to cutting-edge machine learning and data science techniques, as well as the lack of platforms where research addressing African problems using data science could be showcased.

Since its inception, DSA has evolved into a dynamic and influential community that bridges the gap between academia, industry, and policymakers. DSA’s primary activities include organising summer schools and workshops that equip participants with theoretical and practical skills in data science, as well as fostering a vibrant research ecosystem through grants and fellowships. The first DSA event, held at Dedan Kimathi University of Technology in Nyeri, Kenya, in 2015, set the precedent for future engagements. This format—combining intensive training with research presentations—has since been replicated in multiple countries across Africa, including Uganda, Tanzania, Nigeria, Ethiopia, Ghana, South Africa, and Rwanda, cultivating a community that is deeply committed to solving African problems through data-driven approaches.



DSA Purpose, Vision, and Core Values



VISION

To be a provider of training in data-centric technologies recognised continentally as a badge of excellence among employers, policies makers, and community stakeholders



PURPOSE

To empower a community of practitioners and enthusiasts in data-centric technologies for African solutions



Openness /Inclusivity

DSA is a welcoming and nurturing community that aims to help members of the data science community achieve their goal



Pragmatic

We aim to use data science to solve problems relevant to the African context



Sustainability

DSA programs are designed to last and use resources prudently to ensure members of the community benefit



Community

Our goal is to create a strong community that promotes the wellbeing of its members



Agility

We respond to challenges effectively to ensure our mission is achieved



**CORE
VALUES**

In addition to its core values, DSA is guided by foundational principles – Core Tenets - that shape its programs and initiatives:

By Africa Focused on empowering African researchers and practitioners.	Student Focus Prioritising capacity building and learning opportunities.
About Solutions Emphasising practical applications of data science.	Sustainable & Inclusive Focused on empowering African researchers and practitioners.
Agile Adapting to evolving needs and challenges in data science	

In 2024, Data Science Africa (DSA) continued its mission of strengthening data science, machine learning, and AI capacity across Africa through targeted training, research funding, industry collaborations, and community engagement. With a growing network of universities, research institutions, and industry partners, DSA has established itself as a key enabler of data-driven solutions to Africa’s unique challenges. This year saw major milestones in capacity building, research grant awards, strategic partnerships, and financial sustainability, further cementing DSA’s role as a leader in Africa’s data science ecosystem.



Capacity Strengthening

A key focus for DSA in 2024 was expanding training programs through summer schools, research fellowships, mentorship initiatives, and targeted capacity-strengthening for grantees. These efforts aimed to enhance the technical expertise and practical capabilities of African data scientists and researchers tackling pressing climate, health, and socio-economic challenges.



Lacuna Fund Capacity Strengthening Program

For the third consecutive year, DSA partnered with the Meridian Institute to support Lacuna Fund grantees in the fields of climate and health data science. The program began with an introductory workshop to assess the grantees’ needs and refine training delivery. This was followed by eight online training sessions covering key topics such as data integrity, governance, annotation, machine learning readiness, and ethical AI. In addition to the group sessions, DSA provided individual consultations and tutorial support tailored to project-specific challenges, reinforcing its commitment to building robust data ecosystems through localised and responsive technical assistance.



DSA 2024 Summer Schools and Workshops



DSA hosted two major summer schools in 2024. The 12th edition of the DSA Annual Summer School took place from June 3–5 at Dedan Kimathi University of Technology in Nyeri, Kenya, under the theme “Data Science for Social Good in the Age of Generative AI.” Over 300 participants attended lectures and practical sessions on Generative AI, Natural Language Processing (NLP), Edge AI, and Machine Learning for Policy, among others. Later in the year, on August 26, the Uganda chapter organised a regional summer school at Mountains of the Moon University in Fort Portal. This event focused on harnessing data science for economic transformation and included sessions on AI ethics, smart agriculture, climate resilience, and financial inclusion, among others. It brought together over 200 participants for both theoretical instruction and hands-on training designed to equip attendees with practical knowledge applicable to real-world contexts.

Research Funding and DSA Affiliated Centres

In 2024, DSA continued to drive cutting-edge research and institutional strengthening through strategic investments in both individual researchers and affiliated centres of excellence across the continent.

African AI Research Awards (AAIRA)

With funding from Canada's International Development Research Centre (IDRC) through the Artificial Intelligence for Development in Africa (AI4D Africa) program, DSA awarded research grants to 21 researchers (57% male and 43% female) across 10 African countries. These awards supported:

13 Junior Researchers at MSc level conducting AI research in areas such as groundwater quality prediction, biodiversity monitoring, and crop disease detection.

6 Early Career Researchers at postdoctoral level working on AI applications for medical imaging, smart irrigation, and agriculture.

DSA Research Awards for scalable innovations, including a low-cost spectrometer for farm-level crop disease diagnosis and a cloud-based agricultural monitoring



Key outcomes from these funded projects included:

- ▶ **Uganda (Makerere AI Lab):** A low-cost spectrometer piloted with 30 farmers for early crop disease diagnostics.
- ▶ **Zambia (University of Zambia):** An AI-powered pneumonia detection system for real-time radiological diagnostics in teaching hospitals.
- ▶ **Benin (University of Abomey-Calavi):** Application of machine learning and remote sensing to groundwater quality prediction, influencing water policy.
- ▶ **Kenya (Murang'a University of Technology):** Establishment of a Material Science Lab supporting solar cell research and female technologist training.
- ▶ **Malawi (University of Malawi):** A public-facing documentary that raised awareness on biodiversity data collection.



Strengthening DSA Affiliated Centres

Complementing individual research support, DSA has established partnerships with affiliated centres, providing financial contributions, research collaboration, and technical mentorship to strengthen institutional capacity.

- ▶ At the **Nelson Mandela African Institution of Science and Technology (NM-AIST), Tanzania** DSA supported the Data Science Research Lab (DIAL), funding four Master's students working on AI applications in agriculture and health. DIAL emphasised capacity building and research visibility, leading to international presentations at NeurIPS, Women in Machine Learning (WiML), and Black in AI (BAI), and publications in peer-reviewed journals.
- ▶ At the Centre for Data Science and Artificial Intelligence (DSAIL) of **Dedan Kimathi University of Technology, Kenya** DSA continued supporting interdisciplinary research and innovation in data science and AI.

In 2024, DSA expanded this support to two new institutions:

- ▶ **Busitema University, Uganda:** DSA contributed to the Busitema Artificial Intelligence & Interdisciplinary Research Group (BUAIR), complementing TWAS-UNESCO funding. The funds support research assistants working on AI solutions in agriculture, health, and satellite data analysis for rural development.
- ▶ **Maseno University, Kenya:** DSA partnered with the Maseno Centre for Applied Artificial Intelligence (MCA2I) to support the Leveraging AI for Kenyan Sign Language (KSL) Production project. The initiative is developing an AI-powered avatar system that translates spoken English into KSL, using a dataset of 20,000 signed videos. The project advances inclusive education and workplace accessibility for deaf learners. DSA's support covered system development, evaluation, and dissemination



DSA Fellowship Program

The DSA Fellowship Program is a cornerstone initiative aimed at fostering research, innovation, and capacity building in data science and artificial intelligence across Africa. In 2024, the program expanded significantly, offering a range of individual and collaborative fellowships designed to empower early-career researchers, engineers, and digital media practitioners working on impactful, Africa-focused AI solutions.

Individual DSA Visiting Fellows

Among the 2024 fellows, **Antony Gitau** from Kenya made remarkable strides in the field of medical AI. Based at the Centre for Data Science and Artificial Intelligence (DSAIL) at Dedan Kimathi University of Technology, he developed the DSAIL-Orthopaedic web application—an AI-powered tool for orthopedic diagnostics that enhances the accuracy of joint mobility assessments. His work was recognized at Deep Learning IndabaX Kenya 2024, where he received the award for Best African AI Research Project, and he has been invited to present at Deep Learning Indaba 2025. Antony's fellowship also included collaborations with Aga Khan University Hospital and contributions to events such as the PhysioNet Challenge 2024 at the DSA Nyeri Summer School.

In the realm of digital engagement, **Raymond Muhindo** from Uganda served as the Graphics and Digital Media Fellow. He played a pivotal role in elevating DSA's online visibility through compelling content creation, social media management, and website design enhancements. His work ensured wider dissemination of DSA's research and community activities, fostering stronger public engagement within the data science ecosystem.



DSA Data Science to Advance Women's Health (DSAWH) Fellowship

In partnership with Boston University and supported by the Bill & Melinda Gates Foundation, DSA launched the DSA Data Science to Advance Women's Health Fellowship (DSAWH) in 2024. This groundbreaking initiative is set to train **40 early-career African women researchers** over two cohorts (2025 and 2026), equipping them with advanced data science skills to address critical women's health challenges.

Fellows benefit from a rich learning ecosystem that includes scientific writing retreats, mentorship programs, and hands-on workshops delivered during annual DSA events. The program also provides travel and accommodation support to facilitate participation. By fostering collaboration and providing structured development opportunities, the DSAWH Fellowship aims to boost female representation in AI and empower women to drive transformative health innovations across Africa.

Sunbird AI – DSAIL Visiting Fellowship

To strengthen the link between academic research and practical implementation, DSA introduced the Sunbird AI – DSAIL Visiting Fellowship, a collaborative initiative between Sunbird AI (Uganda) and Centre for Data Science and Artificial Intelligence (DSAIL) at Dedan Kimathi University of Technology (Kenya). The one-year fellowship supports **hardware engineers Joel Muhanguzi of Sunbird AI and Gabriel Kiarie of DSAIL** in co-developing AI-driven hardware solutions tailored for African contexts.

The fellowship includes stipends and travel support to facilitate joint research visits, prototyping, testing, and field deployment. By combining academic knowledge with real-world application, the program advances the development of locally relevant, sustainable AI technologies, particularly in areas such as agriculture, health, and environmental monitoring.



Industry and Strategic Partnerships

In 2024, DSA deepened its engagement with industry and strategic partners, reinforcing its role as a convener of cross-sector collaboration for the advancement of AI and data science in Africa. These partnerships are central to DSA's mission to build a sustainable and inclusive ecosystem for research, innovation, and real-world application of AI technologies across the continent.

Collaboration with the International Computation and AI Network (ICAIN)

A flagship partnership in 2024 was with the International Computation and AI Network (ICAIN)—a global consortium of scientists, researchers, and educators from top institutions and supercomputing centres. The collaboration aims to democratise access to AI and high-performance computing in service of the UN Sustainable Development Goals (SDGs).



Two major initiatives have emerged from this partnership so far:

► Improved Weather Prediction for Sustainable Agriculture:

This project enhances medium- to long-range localized precipitation forecasts for small-scale farmers in Africa. By leveraging sensor data and advanced AI-based weather prediction models running on supercomputers, the initiative supports climate-smart agricultural planning. Partners include DSAIL (Dedan Kimathi University of Technology), Amini (a Kenyan climate tech startup), and Communal Shamba Coffee.

► Early Plant Disease Detection Using Spectroscopy:

Recognizing that over 40% of global crop yields are lost to pests and diseases—especially in sub-Saharan Africa—this project focuses on developing a portable, 3D-printed smartphone spectrometer. The tool allows early detection of plant diseases before visible symptoms emerge, enabling timely intervention and reducing the need for field expert travel. Developed in partnership with ETH Zurich, this innovation empowers farmers with accessible, AI-driven diagnostic tools to improve crop resilience and food security.

Through its work with ICAIN, DSA continues to demonstrate how advanced computational resources and collaborative research can be applied to address urgent environmental and agricultural challenges.

Llama Impact Grant for Startups and Researchers (Meta)



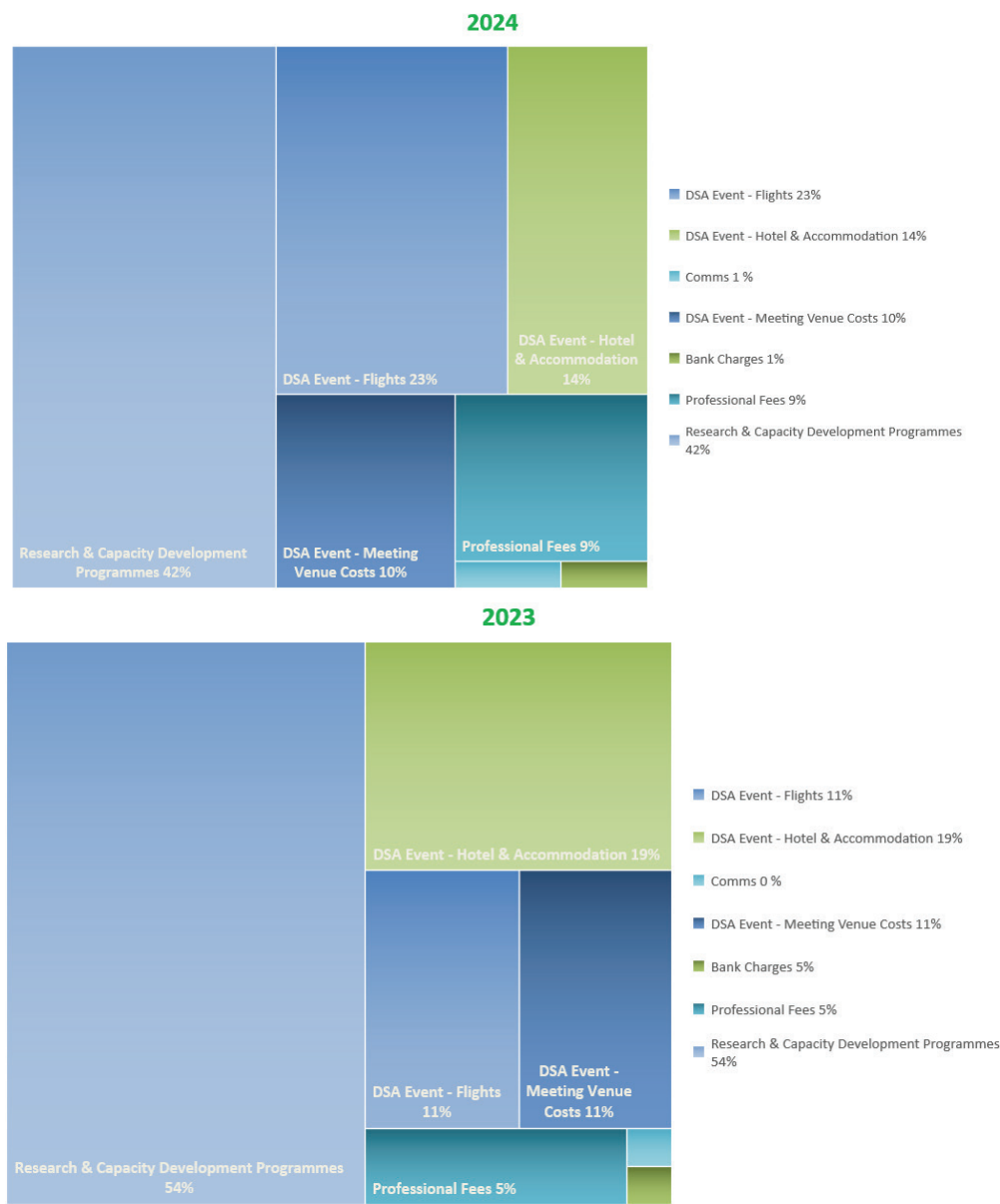
DSA also partnered with Meta to implement the Llama Impact Grant for Startups and Researchers—a new initiative designed to accelerate the adoption of large language models (LLMs) in Africa. The grant provides up to USD 20,000 per project to support African startups and researchers developing AI solutions aligned with the Sustainable Development Goals. Target sectors include agriculture, health, education and climate resilience and positions African innovators to lead in the application of cutting-edge LLMs to real-world challenges, further advancing DSA's commitment to inclusive, practical, and ethical AI deployment.

Financial Growth and Sustainability

DSA experienced record-breaking fundraising in 2024, with significant contributions from strategic partners. Total fundraising exceeded previous years, demonstrating strong and sustained growth. Major grants diversified DSA’s funding sources and enhanced its ability to scale programs. By strengthening its financial foundation, DSA is positioning itself to continue driving AI and data science capacity development in Africa for years to come.

Expenses Overview

A sharp decline in total expenses was observed in 2024 largely due to the winding down of the AAIRA IDRC Grant Program, which primarily covered research programme costs in 2022 and 2023. In contrast, travel and meeting costs increased in 2024, reflecting the expanded number of travel grants awarded to the over 300 participants attending the DSA 2024 Nyeri Summer School and Workshops.



Future Outlook

Looking ahead, DSA aims to expand local chapters across Africa, strengthening community engagement and increasing access to data science training. Furthermore, DSA plans to launch new research awards, ensuring continued support for young researchers. Another key focus will be on strengthening long-term sustainability through diversified funding.

With a robust network of partners and an expanding research ecosystem DSA remains at the forefront of Africa's data science transformation.



Governance and Organisational Structure

DSA Organising Committee and Founding Board Members

- ▶ Prof Ciira Maina, Board Chair
- ▶ Dr Dina Machuve, Board Treasurer
- ▶ Dr Martin Mubangizi, Board Secretary
- ▶ Dr Ernest Mwebaze
- ▶ Dr Billy Okal

DSA Advisory Board Members

- ▶ Prof Neil Lawrence
- ▶ Prof John Quinn



DSA Board Members Since 2023

- ▶ Prof Elaine Nsoesie
- ▶ Dr Joyce Nabende
- ▶ Dr Charles Saidu
- ▶ Mourine Amutorine
- ▶ Dr Moses Thiga
- ▶ Prestone Adie

DSA outsources operations to the following Service Providers:

- ▶ Graphic Design and Digital Media Service - **Raymond Muhindo.**
- ▶ Website Development and Maintenance - **Infinitech Systems.**
- ▶ Finance and Administration - **Arborescence**



Acknowledgments

DSA extends its sincere appreciation to the entire DSA community, strategic partners and board members, whose enthusiastic engagement, generous contributions and guidance have been instrumental in advancing our mission.

Special thanks go to funders whose financial support has enabled critical research and capacity-building initiatives across Africa. We also recognise the invaluable contributions of universities, affiliated centres, and local chapters that have collaborated with us in training, mentorship, and research advancement.

Furthermore, we acknowledge the dedicated efforts of our researchers, fellows, and volunteers, whose hard work and innovation continue to shape the future of data science on the continent.

DSA remains deeply grateful for the growing global network of professionals and organisations that share our vision of a future where African problems are solved by Africans through data-driven approaches.

DSA Funders and Partners in 2024



DeepMind



International Development Research Centre
Centre de recherches pour le développement international

Canada



EDGE IMPULSE



kenet
Kenya Education Network



Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH



Lacuna Fund
Our voice on data



DSAIL
SOLVING REAL WORLD PROBLEMS



Sunbird AI



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