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The African Open Science Platform

Implementing the African Open Science Vision

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Abstract. The African Open Science Platform (AOSP) aims to coordinate and increase the impact of Open Science and related activities on the African continent, enabling African stakeholders to engage in global efforts to address continental and global challenges through collaborative action in open science. Building on the pilot phase of AOSP launched in 2017 and its baseline Open Science Landscape Study, we present the AOSP Strategy and AOSP roadmap developed from 2019 onwards. A key aim is to emphasize a pragmatic, incremental and progressive approach in the implementation – including through the AOSP Artificial Intelligence and Data science institute, incorporating the latest disruptive technological developments such as AI and ecosystems of FAIR Digital Objects (FDO) in support doing science in the digital era.

Keywords: Open Science, African Open Science Platform (AOSP), FAIR Digital Objects (FDO)

The African Open Science Platform

Open Science presents clear pathways for advancement of transformational science that places societal impact at the core and drives knowledge generation through inclusive and open agendas throughout the full cycle of the scientific process. The UNESCO Recommendation on Open Science provides guidance and key areas of action by actors and stakeholders [1].

The African Open Science Platform (AOSP) is an open science diplomacy initiative that seeks to coordinate and amplify impact of Open science and related activities in the African continent. To this end, AOSP aims to position African scientists at the cutting edge of data intensive science by stimulating interactivity and creating opportunity through the development of efficiencies of scale, building critical mass through shared capacities, amplifying impact through a commonality of purpose and voice. AOSP also offer avenues for African open science stakeholders to engage in global initiatives to address continental and global challenges through joint action in open science.

During the pilot phase of the AOSP launched in 2017, a detailed baseline landscape study was commissioned and conducted to assess the landscape and status quo regarding open science in the continent across multiple dimensions [2]. The study published in 2019, highlighted progress, challenges and opportunities through open science. Regarding challenges, the study highlighted key barriers to open science practices in Africa. These included gaps in policy, infrastructure, and incentives – but also historical and cultural, digital divide, data “illiteracy” issues among others.

To this end, the *AOSP Strategy* [3] and an accompanying *AOSP Roadmap* have been developed. These emphasise a pragmatic and incremental approach in the implementation of the strategy, and this facilitated by stakeholder engagement and key partnerships. An AOSP operational model with a set of representative AOSP Regional offices [4] based at African Union Regional Economic bodies (RECs) [5] is in place – this given the very strong policy alignments, synergies and potential joint programming with RECs. For example, in Southern Africa, there is the *SADC Regional Indicative Strategic Plan (RSIDP), a* strategic plan developed to strengthen Southern Africa regional integration and to foster development [6]. There are also Frameworks like the *Southern African Development Community (SADC) Cyberinfrastructure Framework*, developed to support entrenching regional integration through collaboration around education, research & development and innovation to address data and computationally intensive problems of regional significance and impact for [7]. The AOSP strategy implementation is guided by a Governing Council (GC) regarding governance, strategic advice and leadership, building linkages, advocacy, collaborations and avenues for resource mobilisation.

AOSP is conceived as an enabler of collective planning and practice to drive alignment, collaboration, and cooperation between existing initiatives – this by identifying critical gaps and set priorities for action, then designing and delivering activities to respond to those gaps and priorities; mobilising existing and resourcing new initiatives in pursuit of the platform's aims, and enhancing communication, outreach, and advocacy.

The operations of the AOSP encompass engaging with infrastructure providers to facilitate open science infrastructure and federated e-infrastructure access and support; advancing open policy development gaps, advancing open science practices, and promoting use tools of research data management. AOSP operations also include the development of a pan African data science and artificial intelligence (AI) Institute to support internationally competitive research capacity in data analytics and artificial intelligence in support of platform science priorities.

AOSP will coordinate programme delivery and drive a science programme built around collaborative projects addressing African continent priorities captured in various policy instruments including STISA 2024 [8] and Africa AU Agenda 2063 [9]. AOSP will develop extensive networks for coordinating and amplifying impacts of education and skills programmes and for societal engagement and furthering open science dialogue and policy development.

When fully operational, AOSP will be critical for showcasing African research addressing developmental agenda and societal impacts and will be a key facilitator for intra and inter-continental collaboration, North South , South-South collaborations and act as a conduit for coordination and creation of linkages between open data/FAIR data [10] and open science programmes across disciplines across continents, for promoting open science diplomacy and advancement of the development of Global open science commons such as the Global Open Science Cloud (GOSC) [11].

AOSP is currently engaging with various communities of practice in advancement of scientific collaborations and advancement of open science through projects – for example in Health through the DSI-Africa consortium [12] and the eLwazi Open Data Science Platform for the Genomics community [13].

Data availability statement

Not applicable.

Underlying and related material

Not applicable.

Author contributions

Conceptualization (TM); Data curation (N/A); Formal Analysis (N/A); Funding acquisition (N/A); Investigation (N/A); Methodology (N/A); Project administration (N/A); Resources (N/A); Software (N/A); Supervision (N/A); Validation (N/A); Visualization (N/A); Writing – original draft (TM); Writing – review & editing (TM).

Competing interests

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