



Response to the UNESCO Consultation on “Open Science” - The African Open Science Platform -

1. Introduction to the Platform

The African Open Science Platform (AOSP) responds to the UNESCO consultation on open science from a distinctive perspective, that of Africa, where countries consume research outputs from outside the continent whilst able to contribute very little from their own resources. They depend heavily on international funding, collaboration and visiting academics for their research output. The AOSP regards the new open science movement as a means of dynamizing science in Africa to the economic, social and cultural benefit of its peoples, of realizing the Sustainable Development Goals and in contributing a strong African voice to the international scientific effort.

1.1 Open Science and the digital revolution

Development and success of the AOSP is critically dependent on the tools of the digital revolution. The reality and potential of the modern storm of digital data together with pervasive communication have profound implications for society, the economy and for science. No African state should fail to adapt its national intellectual infrastructure to exploit the benefits and minimise the risks this technology creates. Open Science is a vital enabler: in maintaining the rigour and reliability of science; in making scientific results open and accessible to all, in creatively integrating diverse data resources to address complex modern challenges; in open innovation and in engaging with other societal actors as knowledge partners in tackling shared problems. It is fundamental to realisation of the SDGs.

1.2 The challenge for Africa

National science systems worldwide are struggling to adapt to this new paradigm. The alternatives are to do so or risk stagnating in a scientific backwater, isolated from creative streams of social, cultural and economic opportunity. Africa must adapt, but in its own way, and as a leader not a follower, with its own broader, more societally-engaged priorities than many others. It is seizing the challenge with boldness and resolution by creation of the African Open Science Platform, with the potential to be a powerful lever of social, cultural and scientific vitality and of economic development.

The major structural weaknesses of African Science were identified by the African Union’s 2017 report on Science, Technology and Innovation 2024 (STIA2024) as:

- limited capacity for investment in national science systems;
- the paucity of intra-African collaboration;
- the scarcity of critical masses of researchers in key areas of research.

1.3 Platform purpose and function

The Platform is designed to rectify these problems through enhanced, virtual collaboration and strategic funding at a pan-African level. The Platform’s mission is to put African scientists at the cutting edge of contemporary, data-intensive science as a fundamental resource for a modern society. Its building blocks are:

- a federated hardware, communications and software infrastructure, including policies and enabling practices to support open science in the digital era;
- a network of excellence in open science that supports scientists and other societal actors in accumulating and using modern data resources to maximise scientific, social and economic benefit.

These objectives will be realized through six related strands of activity:



Strand 1: A federated network of computational facilities and services.

Strand 2: Software tools and advice on policies and practices of research data management including the management of publication outputs.

Strand 3: A Data Science and AI Institute at the cutting edge of data analytics.

Strand 4: Priority application programmes: e.g. cities, disease, biosphere, agriculture.

Strand 5: A Network for Education and Skills in data & information.

It is designed as a productive means of addressing the challenges that Africa faces through operational efficiencies:

- joint strategic planning to achieve its priorities;
- a basis for the growth of virtual critical masses;
- enhancing intra-African collaboration through major programmes directed towards African priorities;
- efficiencies of scale through joint procurement;
- efficiencies of scale through shared infrastructural provision and database services;
- federating existing capacities as a basis for a powerful network;
- strategic capacity building using shared curricula that are perennially up-dated.

After a successful 3-year pilot project and a competitive bidding process, the operational hub has been located within the National Research Foundation in South Africa. Regional nodes are planned for north, west, east, southwest and south Africa. Implementation and delivery of the five strands of activity will be phased over a three-year period.

2. Priorities for a UNESCO recommendation

In broad terms, the AOSP endorses the definitions and priorities set by the International Science Council in its submission to UNESCO, which the Council has shared with us through its regional office in Pretoria. We do however wish to stress a number of issues that are crucial to open science in Africa:

- The essential component of open science are open access publishing, open data, and openness to society. They are vital to the scientific contribution to development of African societies. Digital tools that are necessary enablers of these processes.
- We look to UNESCO to identify openness to society as a vital part of open science for the contemporary world.
- The current model of much scientific publishing severely disadvantages Africa. There is not an effective point of entry for African science into an international system of publication that is dominated by the institutions, interests and ability to pay of the global north. A major international effort is required to change the business model for much scientific publication, which currently acts against the interests of Africa.
- Africa suffers from a debilitating shortfall in the number of significant databases that it holds. The whole of Africa hosts only one major science database that attains the World Data System's core-trust-seal award, which recognises trustworthy databases. As an example of the seriousness of the issue, the massive amount of data collected by the international community during the 2014 Ebola outbreak in west Africa left the continent at the end of the outbreak. The consequence is that data that would be of great value in responding to future outbreaks of Ebola in Africa are not accessible, although efforts to change that are now under way. A data concordat and strategy for Africa is an urgent need.
- AOSP believes that open science is the future of science in Africa. Its perspectives, as described above, are vital for the future of science in Africa – including capacity building initiatives and S&T



investments. UNESCO should fully embrace and support the open science paradigm in order to ensure that Africa, and other regions of the global South, are not left behind.

- The development of open science policies and practices in Africa should not be fragmented. Fragmentation in national siloes would be a backward step that Africa cannot afford. It must be a time for cooperation not competition. We call on UNESCO to give full support of the AOSP and its full engagement with global open science policies and processes. A strong African voice is vital in shaping global agendas.
- UNESCO should partner with the International Science Council and its members and partners, as the representative bodies of international science, to ensure that the development of the UNESCO recommendation is effectively co-designed in ways that address the priorities, needs and interests of the global scientific community, as well as the policy demands of the SDGs and of governments.