

Concept Clearance: Harnessing Data Science for Health Discovery and Innovation in Africa (DS-I Africa) Stage 2

Background: [DS-I Africa](#) awards were first launched in September 2021 the goal of spurring new health discoveries and catalyzing innovation in healthcare, public health, and health research on the continent through application of data science (DS). The program was founded on the potential impact of multisectoral health DS research and innovation on morbidity and mortality on the continent. NIH has funded 38 awards across 22 African countries and the U.S. These include Research Hubs (U54) and smaller Partnership for Impact Research awards (U01) that advance health DS in Africa and support partnerships to enhance impact; Research Training Programs (U2R) and Research Education Programs (UE5) that build African health DS capacity; Ethical, Legal, and Social Implications Research Projects (ELSI, U01) that explore issues impacting health DS from an African perspective; and an Open Data Science Platform (ODSP) and Coordinating Center (CC, U2C) that facilitates the development and administration of a trans-African network of data scientists.

Stage 1 Accomplishments: In 3 years DS-I Africa has made a unique and important contribution to NIH's portfolio and to the research landscape as a whole in Africa. Support has catalyzed a powerful multidisciplinary and multisectoral network with over 200 partner organizations. DS-I Africa researchers are applying DS approaches to develop new solutions for critical health problems, e.g. integration of complex African datasets to quantify the impact of heat on maternal and child health and have developed new digital health innovations. Synthetic data is being leveraged to reduce barriers to data sharing across the continent. The Research Training Programs have launched 8 advanced degree programs in African institutions that are training 120 students, thus increasing the global breadth of participation in DS research. The ELSI projects are advancing important research on African data governance while also exploring emerging issues with their Research Hub partners. The [elWazi](#) ODSP and CC have created vital social and technological support for collaboration.

Proposed DS-I Africa Stage 2: DS-I Africa Stage 2 (\$95.65M/5 years) builds on Stage 1 by emphasizing enablers of success that also address needs in the field, including African leadership, multisectoral partnerships, growth of next generation data scientists, enhancement of the African DS ecosystem, and aligned funding. We continue Stage 1 initiatives, providing the program with sufficient time to achieve its overarching goal, and add catalytic elements that fill capacity and data gaps and increase the agility of NIH support while fostering sustainability.

Initiative 1. Health DS Research and Innovations (U54s and U01s): Advance DS research and health innovations in Africa and enhance their impact on healthcare and public health by supporting an enabling, partnership-focused ecosystem. Stage 2 will strengthen the partnerships, innovations, and translation necessary to achieve the overall goal of the program.

Initiative 2. Health DS Capacity Building (U2Rs and UE5s): Increase capacity to carry out DS research in Africa through cohorts of investigators in DS that will have the skills to become independent investigators, leaders and collaborators. Institutional capacity to train health data scientists at African institutions will be enhanced.

Initiative 3. Ethical and Social Implications (ESI) of Emerging DS (U01s): Advance research that explores the ESIs associated with emerging DS technologies and innovations from an African perspective and contribute to the research and policy discussions on the continent. An early understanding of the ESIs of new DS technologies is crucial to avoid harm, obtain community trust, and develop equitable pathways for translation.

Initiative 4. Enhance DS Network and Ecosystem (U2C and U24s) Continue to foster a trans-African network through the ODSP/CC (renewal). Additionally, the ODSP/CC will work with the Training Work Group to scale training outputs across the continent. The Early-Stage Data Repositories are a new funding element proposed for Stage 2 that addresses the need for accessible African data while enabling African agency of these data sources.

Initiative 5. Strategic Innovation Fund: A mechanism for NIH to respond more effectively to opportunities for collaboration with other organizations and to changes in the rapidly advancing field of DS. NIH has worked with organizations like the Wellcome Trust in Stage 1, laying the groundwork for closer Stage 2 collaboration.