



Webinar series 2021

Towards Sustainable
Healthcare Systems in Africa

The future of health: Unlocking the potential of Artificial Intelligence for healthcare in Africa

A Webinar Report

13th May 2021

Curated by



Background



Artificial Intelligence (AI) is defined as: “the imitation of human acumen in machines that are typically programmed to imitate human actions.” It is interdisciplinary science with numerous approaches of machine learning in the technology industry. In the recent past, AI has moved from being a futuristic promise into a reference point for innovation and is making its way out of research laboratories in Africa. Due to its potential, stakeholders and governments around the world are taking steps and collaborating to ensure responsible development and leapfrog the use of AI. There is still much to be learned from organizations that are changing health outcomes around the world, and Africa is no exception.

The technology has also started transforming healthcare with great vigor and impact. The utilization of AI in healthcare can significantly impact the work of medical practitioners in many facets of patient care, including administrative procedures. It is time to focus on how the African healthcare space can benefit from AI as well as identify sustainable building blocks for a sustainable implementation of AI on the continent.

Event Partners

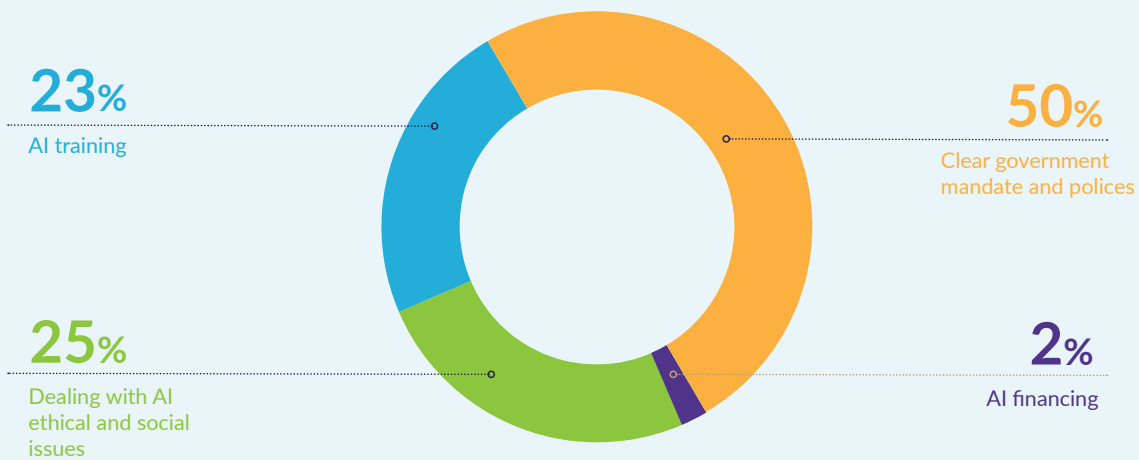


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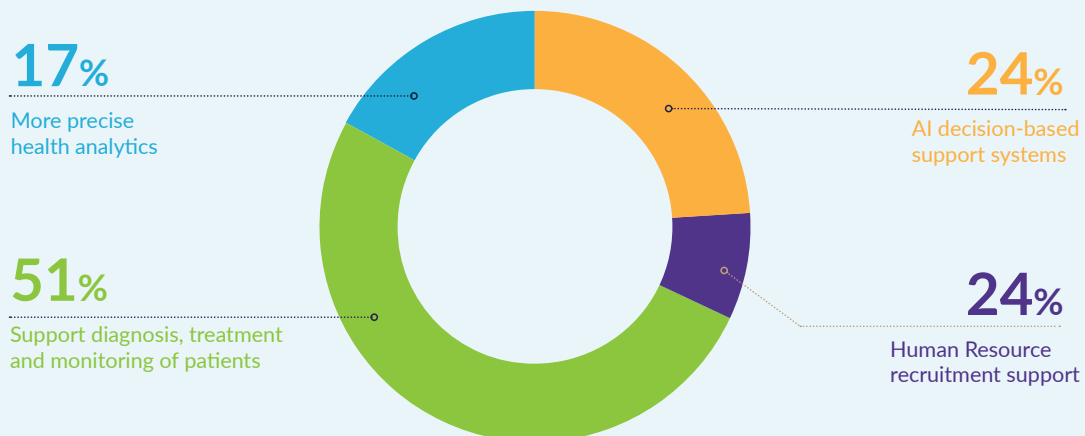
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Poll Results

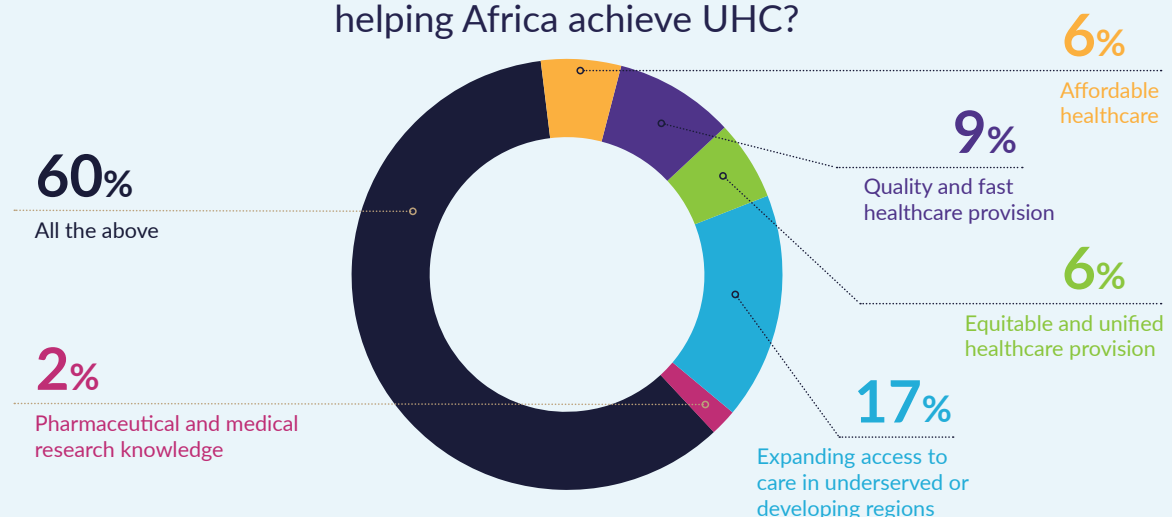
What would make Africa health systems AI ready?



In what ways could AI bridge the shortage of health workers?



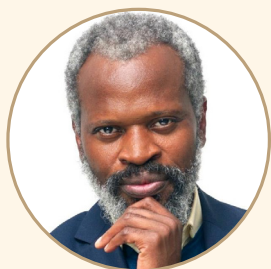
What role can AI play in helping Africa achieve UHC?



Speakers



MODERATOR
Dr. Shadrack Opon
Project Manager,
Africa Health Business



SPEAKER
Mr. John Kamara
Entrepreneur,
AfyaRekod and Adalabs



SPEAKER
Mr. Shadrack Anyuo
Solution Architect Lead,
Amazon Web Services



SPEAKER
Dr. Torooti Mwirigi
Commercial Director,
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SPEAKER
Dr. Joanne R. Korir
General Manager, Health,
Equity Group Foundation



SPEAKER
Mr. Benjamin Makai
Senior Manager, Technology
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Safaricom



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Summary of Discussion



AI IN HEALTH IN AFRICA.

Many organizations have started to adopt AI solutions to improve healthcare processes and outcomes. To mention a few, below are some places where AI has been adopted in the African healthcare space:

- MinoHealth AI Labs in Ghana is automating radiology by applying deep learning and an algorithm known as a convolutional neural network.
- Philips Foundation has successfully implemented AI software, developed by Delft Imaging, in 11 South African hospitals to help triage and monitor COVID-19 patients via X-ray imaging. Delft Imaging's AI-based CAD4COVID software, which complements existing COVID-19 diagnostic technologies, estimates the severity and progression of COVID-19 disease based on routinely available chest X-rays.
- In Tanzania and Zambia, Delft Institute's CAD4TB software has been used to assess the utilization of the computer-aided analysis of pulmonary tuberculosis from the chest radiographs.
- Ilara Health, in Kenya, is also offering accurate and affordable diagnostics to people in rural areas via small, AI-powered diagnostic devices incorporated through a proprietary technology policy and correspondingly distributed openly to the primary care doctors.
- Antara Health headquartered in Seattle, USA with groundwork in Africa is using AI-assisted health technology to make healthcare simple for patients and providers. XELPHA Health operating Aphyra as the sole mobile-first EMR solution that assists in the detection and optimization of specific devices and

hence facilitating active contribution and engagement amidst both patients and providers.

- Equity Bank Foundation, in Kenya, which runs programs in various sectors of the economy has a goal in health to drive access to affordable and high-quality health services. It has telemedicine services on one of its rural facilities.
- Amazon Web Services (AWS) headquartered in USA with branches in Africa has built a machine learning stack that makes machine learning capabilities to be more reachable to a greater percentage in the society. Data scientists who want to build their own models can use it. AWS also has a Medical Comprehend tool which helps medical practitioners to understand medical context with advanced text analytics, Amazon Transcribe which converts medical speech to text, Amazon text extract and lastly Amazon Recognition.

CHALLENGES OF AI IN THE AFRICAN HEALTHCARE SPACE.

Despite the potential of AI, there are several challenges which hinder adoption in Africa.

- How to collect, clean and model the data you can trust and write algorithms that can trend themselves and make high predictions is a challenge, especially in healthcare. Africa's healthcare tends to be inconsistent, incomplete, and in other times complex. It becomes labor intensive to extract meaningful medical information therefore causing physicians burnout and a lot of cases of errors.
- The data issue is not an African problem particularly in the areas of health. The healthcare value chain is overly complex and with many interconnected

different specialties. This brings up the issue of data governance and management of the whole healthcare data framework. Africa lacks the right security mechanisms that comply with the already existing regulations. There is also inability to build right frameworks and models which allow users to open doors into available data sets without creating a room for data breach. There is need to consider how we structure the data, how we exchange the data on technology platforms and how that data gets analyzed.

- The global digital technology community finds it hard to understand the data standards agreed on and which can be used uniformly in different parts of the world. How would we therefore standardize data usage in Africa?
- There is limited AI knowledge and awareness in on the continent.
- Many digital health solutions (including AI) are expensive to integrate and adopt. They increase the initial cost of healthcare and therefore many health facilities fear or ignore to adopt them.

OPPORTUNITIES FOR AI IN THE AFRICAN HEALTHCARE SPACE.

- AI can make treatment more accessible and affordable through ensuring reliable health systems. This can be in form of modernizing the care infrastructure whereby customer engagement is increased to a better level, for example through using Chatbot.
- There is an opportunity to build models and algorithms which reduce things like cyber threats and increase security assurance and improve the protection patient data.
- AI can assist in surveillance and self-management at home. This will help patient with self-trials and basic treatment and ultimately improve efficiency, effectiveness, and cost reduction.
- Improving and accelerating diagnosis is another opportunity. AI can enable the usage of data to build models, learn from that data and identify hidden patterns or trends which can accelerate the rate at which healthcare facilities providing diagnosis and assist in precision and accuracy in terms of clinical decision-making. Examples are the models which can predict reoccurrence of cancer. These models can be structured in such a way that they follow specific protocols and procedures to diagnose specific conditions. This can be one way of standardizing healthcare systems.
- Stakeholders who are involved in the policy within the healthcare industry can have more data driven decision making processes powered by AI or machine

learning algorithms and this can help in managing population health by the anticipation on predictive analysis and data.

- AI can be used to analyze people's behavior patterns and match medical related products with people's interests.

AI AND THE COVID-19 PANDEMIC.

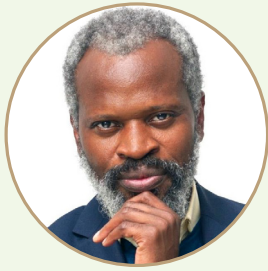
The COVID-19 pandemic has forced healthcare sector across the continent to react abruptly. This has brought an increased need for solutions to diagnose and monitor COVID-19. Adopting new and alternative technologies should become an essential part of reducing resource limitations and decreasing the spread of existing and new virus strains.

AI can, and should, be used to **detect, monitor, prevent, inform, and respond** to COVID-19 pandemic.

ESSENTIAL BUILDING BLOCKS FOR A SUSTAINABLE IMPLEMENTATION AI IN AFRICA'S HEALTHCARE SPACE.

To leverage the opportunities for AI in healthcare in Africa, there is need to address the main building blocks that are essential to delivering a sustainable AI solutions.

- A proper digital infrastructure to store data and develop a strong data culture within health facilities that value data collection, understanding and makes tools and resources accessible to clinicians to capture and report quality data.
- Suitable regulations and standards for AI and data sciences need to be put in place. This will enable regulators to examine AI applications within health before their deployment.
- Africa also needs to consider adoption of local solutions by comprehending and finding suitable solutions to promote self-reliance and assisting in cultivating the local ecosystem.
- There is a need for more targeted funding for the AI health start-ups in Africa that links entrepreneurs with corresponding financiers and reduces the risk for private investors.
- To harness AI in an ethical, inclusive, and non-biased way, institutions responsible for managing data sets need have the right mechanisms and the right technology to differentiate the roles of every actor within the organization and determine what level of depth to reach when it comes to accessibility of data. They also need to have an audit trail to show who accessed what, at what time and for what purpose.
- There is no AI without the right data source and experts need to get it right when curating data. Data needs to be clean and structured to allow learning.



“Africa has an opportunity to leapfrog the world with AI in healthcare because one of the things we produce so well is data. Africa has little jurisdiction and over compliance problems as compared to other parts of the world, problems which sometimes stifle innovations.”

Mr. John Kamara



“When we talk about digital health and its position in making healthcare services more sustainable, we have to look at it in terms of the benefits for the whole tripartite pyramid, including the provider, payer and patient.”

Dr. Joanne R. Korir

“Instead of looking at what degree we trust machines, we can look at the value we derive from those new capabilities of enhancing lives.”

Mr. Shadrack Anyuo



“Education, agriculture, and health are the pockets of future in the present.”

Mr. Benjamin Makai

“AI is not likely to replace physicians even in the developed countries, especially because of the need for human elements such as empathy in treatment. But physicians who use AI will replace those who do not. This is a futuristic reality we all have to start thinking about.”


Dr. Shadrack Opon



“AI cannot be viewed as end and all: It cannot solve everything. We need to understand the areas where we can implement AI and the different models to put in so that we can measure outcomes and get to see the impact in the future. We should not see AI as a magic bullet but as an important aspect of technology that will be able to quickly improve healthcare delivery.”

Dr. Torooti Mwirigi

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