

# Healthcare in Nigeria

The Promises of Digital  
Transformation



**12mins**  
READ



## Highlights:

Nigeria needs a healthy workforce to sustain a healthy economy. Our population has doubled in the last 30 years to **218 million** people (2022 estimates), and projected to hit 440million by the year 2050 (in 28 years' time). The current and future healthcare needs are indeed diverse and enormous, and far beyond the capacity of the current health ecosystem. To avert a system collapse in the years ahead, the country must begin to build a resilient health system that is functional, dependable, affordable, and accessible to Nigerians irrespective of their social status, income level or geographical location. Stakeholders continue to seek immediate and long-term solutions to the myriad of challenges confronting the sector, including the possibilities digital healthcare offer, as the world becomes exponentially digitised.

For digital healthcare to thrive, there must be institutional, infrastructural and policy support that will facilitate the emergence of new business models in health care delivery. There must be targeted investments –in digital infrastructure, in governance, in institutional capacity, in people and processes, and in ecosystem enablers. For Nigeria, here are some must-haves to begin with to enable digital healthcare:

1. A robust digital healthcare policy to provide direction to healthcare providers, patients, investors, regulators, and other ecosystem stakeholder groups.
2. Hybrid healthcare architecture given the prevalent digital divide and weak infrastructure.
3. Digital training in medical universities and teaching hospitals to develop healthcare workers for the digital age.
4. Data collection, protection, analysis, and use are crucial; without which it will be impossible to operationalise any system-wide digital interventions.
5. Broadband Internet is an enabler that we must get right. 5G remains a game changer for digital healthcare interventions.
6. Increased health-tech investments to deliver local solutions to perennial frictions in the sector.
7. Digital tech enablement for research, disease monitoring and public health education.
8. Health insurance must be made to work. Universal health coverage is the backbone of modern healthcare delivery.
9. Digital identity is an asset to healthcare, and at the heart of the future of digital care.

**Health is wealth**, but healthcare indicators in Nigeria have continued to deteriorate. The country has struggled for decades to establish a functional primary healthcare system, talk less of tertiary healthcare. According to the [2022 world health statistics](#) of the World Health Organization (WHO), healthy life expectancy at birth in Nigeria is 54.4years, whilst under-five mortality rate is 114 deaths per 1000 live births (second highest globally). Only 43% of births in Nigeria are supervised by skilled health personnel, hence the high maternal mortality (1 death for every 109 live births – the fourth highest in the world). Across other indices such as emergency response, malaria, tuberculosis, HIV infections and Hepatitis, Nigeria performs worse than the average African region ratings. These indices typify a healthcare system in need of serious reforms. At Verraki, we are passionate about helping businesses and governments in Africa solve seemingly intractable challenges. Healthcare is one area we desire to see huge transformation in the years ahead.

The table below captures how badly Africa's biggest economy (Nigeria) ranks on some major healthcare indicators amongst the continents' top five economies:

Key healthcare Indications in Nigeria									
	Healthy life expectancy at birth (years)	Maternal mortality ratio (per 100000 live births)	Proportion of births attended by skilled health personnel (%)	Under-five mortality rate (per 1000 live births)	Malaria incidence (per 1000 population at risk)	Density of medical doctors (per 10 000 population)	Density of nursing and midwifery personnel (per 10 000 population)	Density of pharmacists (per 10 000 population)	Government health expenditure (as a % of annual budget)
<b>Nigeria</b>	<b>54.4</b>	<b>917</b>	<b>43</b>	<b>114</b>	<b>313.8</b>	<b>3.8</b>	15.0	<b>1.2</b>	<b>3.8</b>
Egypt	63	37	92	19	-	7.5	19.3	4.6	4.7
South Africa	56.2	119	97	32	0.8	7.9	49.7	2.7	15.3
Algeria	66.4	112	99	23	-	17.2	15.5	4.5	10.7
Morocco	63.7	70	87	19	-	7.3	<b>13.9</b>	2.6	7.1
African Region	56.0	525	65	72	232.8	2.9	12.9	0.8	6.9
Global	63.7	211	84	37	59.0	16.4	39.5	4.7	10.5

Source: WHO World Health Statistics, 2022

\*Red fonts indicate worst performance



Nigeria's population has doubled in the last 30 years to **218 million** people (2022 estimates). By the year 2050, (in 28 years' time) the population is projected to hit **440million** people, to emerge the world's **3rd largest**. The country certainly and urgently requires a swift, unprecedented, and technology-driven healthcare reforms and investments to position for this population boom and change the current narrative that puts Nigeria as one of the countries with worst health outcome globally.

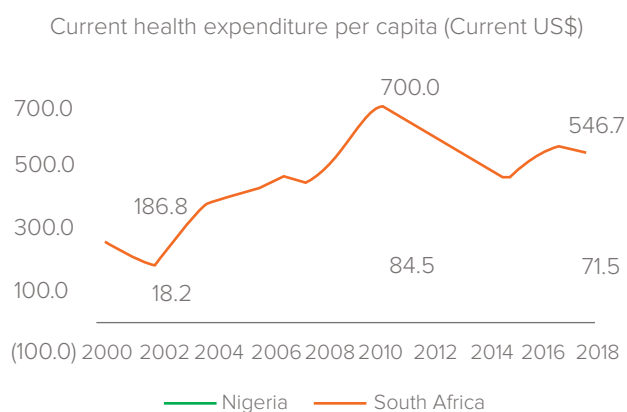
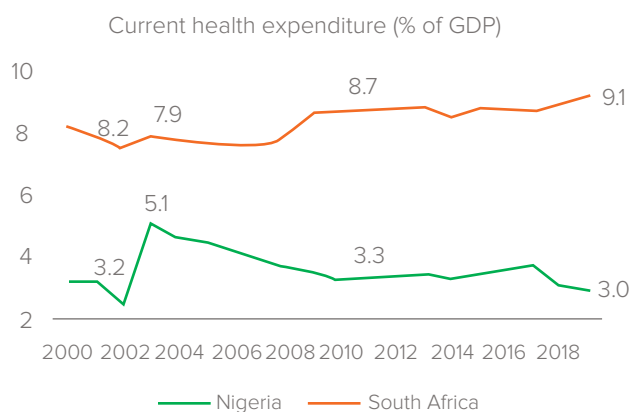
The challenges confronting the Nigeria healthcare system are multidimensional. According to **data** from the WHO, Nigeria accounted for the largest (31.9%) of the 627,000 global deaths from malaria in 2020; followed by the Democratic Republic of the Congo (13.2%). Available data puts out-of-pocket health expenditure in Nigeria at 70.5% (31% in sub-Saharan Africa) of annual health expenditure, an indication of poor health system financing, which the population tries to remedy through household spending. By implication, a very large proportion of the population have a high risk of financial distress or death in the event of any severe health challenge, given the 40% poverty rate. This is very troubling.

According to the founding documents of the WHO, "The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition". Good health is also clearly determined by other basic human rights including access to safe drinking water and sanitation, nutritious foods, adequate housing, education, and safe working conditions. For context, the primary healthcare is managed by the local government, the secondary care is administered by the state government and tertiary care falls under the control of the federal government. Ideally, the first major point of contact of the populace with the healthcare system should be the primary healthcare facilities nationwide, but these facilities are neither adequate nor functional, for the most part. Yet, primary healthcare is fundamentally effective in the management of Noncommunicable diseases (NCDs) which is responsible for **41 million deaths** each year, equivalent to 74% of all deaths globally. Low- and middle-income countries (Nigeria inclusive) accounts for 77% of global NCD deaths.

## A system starved of funding and genuine attention for so long

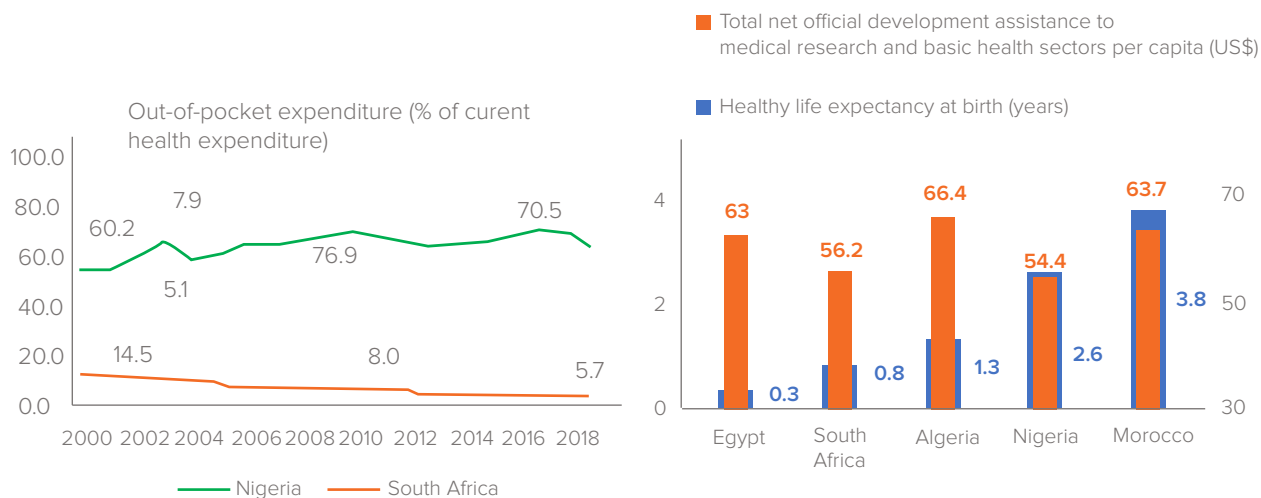


Healthcare can be financed through a combination of public expenditure, private expenditure, or external aid. The WHO recommends allocation of 15% of national budget to healthcare, but the Federal Government of Nigeria spends less than 5%. Protracted poor funding is arguably the root cause of many challenges confronting the Nigerian healthcare system, from weak health infrastructure to the frequent industrial actions by healthcare workers, and the exodus of Nigerian trained doctors and healthcare workers abroad. In the 2022 budget, the Federal Government of Nigeria planned to spend (4.7%) N820 billion (about US\$2billion) to cater for the healthcare needs of over 200 million people and this will complement the spend by states and the local governments. South Africa (with a population of about 50 million) budgeted R259 billion (about US\$16 billion) for health in the same year. Current health expenditure (% of GDP) is 3.0% in Nigeria, and 9.1% in South Africa; whilst health expenditure per capita for both countries stood at US\$71.5 and US\$546 respectively. Relative to the size of the economy and population, Nigeria’s public healthcare expenditure is one of the lowest in Africa. The National Health Act was signed in 2014 and mandates the government to provide 1% of the Consolidated Revenue Fund for the Basic Health Care Provision Fund. While provisions have been made in recent budgets, the impact is yet to be felt by Nigerians.



Source: The World Bank

The Nigerian health system primarily relies on out-of-pocket (household) expenditure, given the limited spread of universal health coverage (UHC). Such reliance on a population with **US\$2,085 per capita GDP** would imply perpetual funding shortages for the healthcare providers, and further social-economic challenges for the people. The government kick-started the National Health Insurance Scheme (NHIS) in 2005, but the scheme today covers less than 10% of Nigerians mainly private sector workers plus federal and state government workers. Also, less than 3% of the Nigerian population are under the private health insurance (PHI) coverage. The National Strategic Health Development Plan 2 (2018–2022) sets a target of reducing out-of-pocket expenditure to 35% of overall health expenditure, however the latest available data shows that out-of-pocket expenditure still accounts for the largest 71% of all health expenditure in the country.



Source: The World Bank

How well has foreign aid helped to solve Nigeria’s healthcare challenges? Data from the WHO shows that Nigeria has the second highest health donor funding per capita amongst Africa’s five largest economies but ranks the lowest in most health indices. A recent report from the ICIRC documented that Nigeria received about US\$1.1 billion in foreign aid to fight malaria between 2014 and 2017, from donor agencies such as the Global Fund, World Bank, USAID, DFID, UNICEF, WHO and UNITAID. Nonetheless, the 2021 World Malaria Report shows that Nigeria accounts for about 32% of global deaths from malaria, the largest globally. Donor funds will have greater impact when the government demonstrates institutional agility, spending effectiveness, financial transparency, and accountability to implement targeted programmes; and with firm commitments from state governments to pay counterpart funds promptly. Nigeria is yet to score high in these areas.

Regrettably, Africa depends heavily on western funding, products, and approaches to build and strengthen its health system. The continent suffered huge consequences of this overreliance during the COVID-19 supply chain crisis when it could not manufacture its vaccines, and had to rely on Covax, the vaccine-sharing initiative for COVID-19 vaccine supply. As of August 2022, Africa has received only 929 million doses of COVID-19 vaccine and had achieved only 21.2% (30% for Nigeria) vaccination coverage compared to 70% globally.



## Now there is a bigger problem: Nigerian doctors and nurses are leaving the country



Nigeria lacks adequate health personnel to provide care for her growing population, and the few available doctors and nurses are leaving the country in droves. WHO estimates show that Nigeria has about 3.8 medical doctors per 10,000 of the population (equivalent to 1 doctor per 2,600 people), and these few doctors are concentrated in the major cities. Available estimates say that over 50% of the approximately 75,000 Nigerian-trained doctors (most of whom were trained in subsidised public universities) are practicing outside the country. Insecurity, poor work environment, poor remuneration and limited equipment to work with are some of the key reasons Nigerian medical professionals are leaving the country for Europe, America, and Saudi Arabia. Some doctors leave immediately after graduation to pursue international residency training (which has become extremely difficult to get in the country) and mostly never returned. Some others leave within five to ten years of practice in Nigeria in search of better pay and work environment abroad. The third category are specialists (consultants) who also leave for similar reasons or to be able to provide western education for their children.

Indicator	Nigeria	SA	Egypt	Algeria	Morocco
Medical doctors (number)	74,543	46,393	74,923	72,604	26,003
Medical doctors (per 10,000)	3.8	7.92	7.46	17.19	7.31
Nursing and midwifery personnel (per 10,000)	15.01	49.74	19.26	15.48	13.89
Dentists (per 10,000)	0.22	1.09	2.01	3.66	1.36
Pharmacists (per 10,000)	1.23	2.72	4.57	4.45	2.6

Source: WHO  
\*Red fonts indicate worst performance

Goal 3 of the Sustainable Development Goals (SDG) focuses on ensuring healthy lives and promoting well-being for all ages. The chances of achieving this becomes increasingly slim with the exodus of Nigerian doctors abroad. Available report shows that about 10,096 Nigeria-trained doctors have migrated to the United Kingdom as of August 30, 2022. Further, some 3,895 Nigerian-educated doctors are licensed to practice medicine in the United States as of year 2020. Other major choice destinations for Nigerian-trained doctors include Canada, Saudi Arabia, UAE, Australia, and Qatar. Nigeria cannot afford to lose more doctors to brain drain, and must provide doctors an improved working condition, and incentives to stay in Nigeria, at a time when labour is more mobile than it has ever been. Beyond providing adequate funding and infrastructure, the safety of doctors, residency training opportunities, incessant industrial actions must be urgently addressed. It is now a global workplace and Nigeria must do the needful to attract and retain medical practitioners for us to have a chance at meeting SDG 3.



## How can digital health help?



Whilst Nigeria's healthcare system continues to be on a limp, it may be instructive to fast forward a bit and explore the hopes offered by digital healthcare - "the field of knowledge and practice associated with the development and use of digital technologies to improve health". There are reasons to be somewhat optimistic: digital technologies are now integral parts of our daily life, and human-to-human, and human-to-machines interconnections have never been at this scale. Innovation, particularly in the digital sphere, is happening at unprecedented scale and scope. Nonetheless, its application to improve the health of populations remains largely untapped in Nigeria, despite the immense viability and scope, and of course, the possibilities we saw during the peak of the covid-19 pandemic with tele-consultation, remote dispensing, EMRs, etc.

At Verraki, we believe very strongly that digital healthcare transformation holds great potential for Nigeria. Our optimism is built not on the readiness of healthcare institutions and policy makers for such a leap, rather, we emphasise the relative readiness of the market, investors, and the Nigerian people. As of October 2022, Nigeria has 214 million active telephone connections and 153 million active internet subscriptions. Broadband penetration has grown from 22% (41 million) in January 2017 to 46% (86 million) by October 2022. Digital technology adoption by the Nigerian (predominantly young) population in the last two decades has been incredibly encouraging. This is indeed the time to go digital.

For starters, we seem to align with the submission of the WHO's global strategy paper on digital health, that technologies such as the internet of things, virtual care, remote monitoring, artificial intelligence, big data analytics, blockchain, smart wearables, platforms, tools enabling data exchange and storage, and tools enabling remote data capture and the exchange of relevant information across the health ecosystem have proven potential to enhance health outcomes by improving medical diagnosis, data-based treatment decisions, digital therapeutics, clinical trials, self-management of care and person-centred care as well as creating more evidence-based knowledge, skills and competence for professionals to support healthcare.

For digital healthcare to thrive across locations, there must be institutional, infrastructural and policy support that will facilitate the emergence of new business models in care delivery. There must be targeted investments –in digital infrastructure, in governance, in institutional capacity, in people and processes, and in ecosystem enablers. A desired outcome of these investments is empowered practitioners and patients towards the achievement of healthcare for all. Digital healthcare works, but there are necessary building blocks. We highlight some of these as may be peculiar to Nigeria:





## A clear digital healthcare policy direction is mandatory

Nigeria needs a robust digital healthcare policy. Over the years, the government did come up with various policy frameworks to revitalise healthcare in the country. These include the National Health Act (NHAct) 2014; National Health Policy (NHP) 2016, Health Financing Policy and Strategy 2017, amongst others. Recently, the President signed the National Health Insurance Authority Act 2022 which repeals the National Health Insurance Scheme (NHIS) Act. The new act makes health insurance mandatory for all Nigerians. Nigeria's current second National Strategic Health Development Plan (2018-2022) has five strategic pillars and 15 priority areas. Digital health did not feature in either category.

The digital healthcare policy will detail healthcare action plans that are unique to our technological realities and the gaps in the healthcare systems; one that best suits our culture and values, vision, goals, health and well-being needs, and available resources. The objective would be to take advantage of the rapid advancements in digital technology as an enabler of functional health systems and universal health coverage. Such policy will help the country avoid the pitfall of ill-coordinated or disjointed digital health initiatives by various stakeholders that often lead to vertical or stand-alone solutions that, although well-intended, often result in limited reach, information fragmentation and, consequently, poor delivery of services.

A carefully designed digital healthcare policy will serve to protect the Nigerian people, healthcare professionals and health systems against misinformation and the misuse of information, malicious cyber activities, fraud and exploitation, inappropriate use of health data and human rights violations within the framework established by international platforms such as the WHO. According to the WHO, the appropriate use of digital health must consider the following dimensions: health promotion and disease prevention, patient safety, ethics, interoperability, intellectual property, data security (confidentiality, integrity, and availability), privacy, cost-effectiveness, patient engagement, and affordability. It should be people-centred, trust-based, evidence-based, effective, efficient, sustainable, inclusive, equitable and contextualized.





# 2

## The digital divide and poor infrastructure demand a hybrid healthcare architecture

The [digital divide](#) refers to the gap between individuals, households, business and geographic areas at different socio-economic levels with regard to both their opportunities to access information technologies and use such technologies for a wide variety of activities. While digital transformation has undoubtedly changed the world for the better, the benefits of digital tools in healthcare have not always reached the population segments that need healthcare the most due to digital exclusion.

Available broadband internet, electricity, and IT infrastructure especially in rural areas is grossly inadequate. There are low digital literacy levels, poverty, and high resistance to change including among healthcare workers. Social and cultural beliefs and attitudes to new technologies as well as huge set-up cost for IT infrastructure in rural communities are major hurdles limiting digital health adoption. The challenge therefore becomes how the current health care architecture can be adequately adjusted, modified, or otherwise improved. Going hybrid entails the adoption of the best of in-person and digitally enabled systems to deliver healthcare that is more efficient while creating a more rewarding patient experience for all.

For starters, patients and doctors in Nigeria must continue to adapt to new technologies and workflows that are powering remote consultations, remote monitoring, and personal health records. These include tools for appointment self-scheduling, appointment reminders, digital registration and check-in, patient surveys, 2-way patient text, mobile billing, and continuous utilisation of smart mobile devices for health monitoring. We must however continue to strategically invest in primary health care, and consistently push for motivated health workforce, improved financial protection and improvements to the National Health Management Information System to realize better-performing primary health care systems that deliver significantly improved health outcomes to every region of the country, pending nationwide digital access. Primary Healthcare Centers must be made functional as they are globally recognized to provide efficient and equitable means of health care delivery due to its pro-poor orientation.



# 3

## Digital training in medical universities and teaching hospitals to develop healthcare workers for the digital age

Despite the huge benefits associated with the use of digital health, many medical schools across the country are yet to incorporate digital education and tools in their training curricula. There is a reluctance among healthcare workers to adapt to digital technologies as many have limited knowledge of digital systems and do not understand the rationale for digital technology or believe that it will improve the delivery of healthcare. To overcome these hurdles, it is imperative that there is a significant level of exposure to digital technology use in contemporary health management during medical training. A [study](#) conducted on the opinions of medical students on the incorporation of ICT into the medical school curriculum showed that medical students strongly consider digital technologies to be of relevance to healthcare.

The Nigerian government, and Ministries of Health and Education need to re-evaluate what the medical schools must be able to provide as part of medical training and should formulate and implement sustainable educational policies that will favour the application of ICT in the training of medical doctors. Capacity building of the local healthcare workforce is a major prerequisite to maximize the benefits from the innovations made possible with the spread of digital health technologies. Health care workers should be trained on digital systems and how to integrate these systems into their daily consultations and treatments. Medical educators and ICT educators in Nigeria should advocate for significant increase in budget allocations and curricular reforms that will produce healthcare workers fit for the digital age.



# 4

## Data is king - collection, analysis, use and protection

Healthcare providers should be compelled to have a standardised electronic health record (EHR) system in their facility and use it for every patient. EHR is a digital version of a patient's paper chart (patient file) and contains updated patient-centred records that make information available instantly and securely to authorised users. It can be optimised to store patient's medical history, diagnoses, medications, treatment plans, immunization dates, allergies, radiology images, and laboratory and test results; allowing doctors to make quick and informed decisions about a patient's care. Working with stakeholders in the technology space, the country can begin to develop guidelines and architecture for a cloud based EHR system that will be the minimum standard for practitioners to securely document, store, retrieve, share, and analyse information about individual patient care. The architecture must be built to allow for data interoperability with others, including financial and other non-medical systems.

A functional digitised database of patients and care providers is one of the most important elements of digital healthcare transformation in Nigeria. We must do away with paper patients' 'card' and 'file' by all possible means. We need patient data formats that are easily accessible, usable, and scalable. Data protection is critical for success and policy must address issues of data integrity - storage, privacy, and confidentiality, with regulations to guarantee the right to data protection, eliminating misuse and potential commercialisation of patients' data, and strong oversight on mobile network operators who may play a role in data hosting and transmission.



# 5

## Broadband Internet - 5G as a game changer in digital healthcare

Reliable and affordable internet connectivity is a critical must-have for digital healthcare transformation in Nigeria. Nigeria's broadband penetration was 46% in October 2022, with about 86 million broadband subscriptions. In rural Nigeria, reliable internet penetration remains limited, and the targets set in the Nigerian National Broadband Plan (NNBP) 2020 – 2025 are yet to be attained. This necessitates an aggressive push for the utilisation of existing broadband infrastructure and calls for increased private investments in the ICT sector, including 5G infrastructure.

5G has been described as an inflection point in the field of mobile digital technology. It is expected to deliver broadband internet speed that is 100 times faster than the current (3G & 4G) technology, allowing a near-instantaneous streaming, downloading, and uploading, with interesting healthcare use cases anticipated. For telemedicine, this means patients will experience better video conference quality, regardless of location. Doctors will have access to accurate, real-time imaging of organs, soft tissue, and bones, which in turn will greatly decrease the risk of misdiagnosis. With 5G, doctors could soon use ultra-reliable connections to teleport to virtual environments and perform robotic surgeries. It could support medical training, enabling students to use virtual reality headsets to practice at their own pace. Furthermore, 5G-enabled drones could deliver life-saving medicine or devices to patients in hard-to-reach rural areas.

Following the successful auctioning of the 3.5GHz 5G spectrum in December 2021 by the Nigerian Communications Commission (NCC), MTN Nigeria, in partnership with Ericsson, recently (August 2022) [announced](#) a pilot roll out of 5G technology in 190 sites across the country including Lagos, Abuja, Enugu, Port Harcourt, and Kano. MAFAB the second licensee for 5G is expected to begin pilot roll-out in early 2023 while NCC has also announced its plan to auction two more 5G licenses. According to the [2022 GSMA Report](#), there will be 41 million 5G connections in Sub Sahara Africa by 2025. 5G is potentially one of the most important networks of the 21st century. It is the very definition of critical infrastructure, which Nigeria must leverage to scale digital healthcare transformation.



## 6

## Health-tech can deliver local solutions but requires increased investments

### Spotlight on Rwanda:

Rwanda has more than 10 years' experience in national digital health plans; the first strategy was launched in 2006. Between 2010 and 2020, the government of Rwanda has committed to invest more than \$50 million in e-health. In 2009, the government committed \$32 million to e-health for the period 2010–2015, including \$7 million allocated to ICT infrastructure development and \$4.5 million to internet-enabled e-health services. The latest e-health plan includes a further \$21 million to be invested up to 2020. Results achieved by 2015 include: 96% of health facilities connected to the internet; 27% of hospitals using telemedicine; and nearly 200,000 patients tracked using RapidSMS (a mobile solution that tracks the first 1,000 days of life, helping prevent deaths among mothers and new-borns).

Nigeria is Africa's largest health care market offering immense health-tech investment opportunities. Funding for health start-ups has however not been as robust as for Fintechs, e-commerce, agro-tech, and other sectors. According to the 2021 Africa Tech Venture Capital Report, US\$3.2bn was invested in Fintechs on the continent (62%) versus US\$230m (4%) in Health-techs in 2021. In Nigeria, US\$1.3bn was invested in Fintechs compared to \$44m for Health-techs. Governments have a key funding role to play through budget allocation for direct investment, de-risking of the sector through public-private partnerships (PPP) and fostering an ecosystem that promotes private investments in local health-tech. PPPs is a viable business model that enables the sharing of resources, capabilities, and opportunities/risks among key stakeholders. A typical PPP in the health-tech space would involve governments (funders, payers), health-tech companies (providers of healthcare technology solutions) mobile operators (ICT partners), investors, and many other stakeholders.

Government and Ministry of Health must create an enabling environment for investments in digital health technologies through new policies, institutional changes, workflows and capacity building. There is need to develop comprehensive health and digital policy, laws and regulations that address sector-wide information and data governance issues. Such policy document must map out where technology is likely to have the greatest long term patient benefit and ensure there is a policy ecosystem in place to support it, such as legislation that requires patient records to be stored electronically. The government must secure agreement from all stakeholders, including mobile operators, on the digital health architecture, blueprint or roadmap needed to deliver the strategy, and help development partners identify where they are most needed in the value chain. This will help start-ups and investors understand what to focus on, and how to best contribute. There must also be enforcement mechanisms through digitally enabled services, such as inspection and regulation of the quality of care and information management.

Healthcare entrepreneurs must equally trust and engage with the government when developing solutions and proof-of-concepts to ensure that solutions solve real industry frictions and fit well within the existing (or future) healthcare reform roadmap. It is equally instructive for healthcare entrepreneurs to leverage ecosystem partnerships to deliver customised digital health services; and ensure good understanding of investors, markets, financial institutions, and the implementation landscape.



# 7

## Digital tech for research, disease monitoring and public health education

Digital technology can be deployed to facilitate medical research and all other endeavours that contribute to delivering knowledge in the science and art of medicine. Digital technologies have the potential to significantly improve the speed and accuracy of public health functions such as infectious disease diagnostics, surveillance, forecasting, outbreak detection and response. Community of health practitioners, scientists, researchers, data analysts, and related stakeholders can form networks, enabled by technology platforms, to facilitate the use of data and technology in the monitoring, surveillance, and dissemination of information about diseases in the country. Some recent successes have already been recorded in the Nigerian public health space:

- **NIMCURE** is a collaborative research and development project between CcHUB and the Nigerian Institute of Medical Research (NIMR). The project seeks to develop a digital tool to support and enhance adherence to treatment by Tuberculosis patients in Nigeria.
- During the COVID-19 pandemic, the Nigerian Institute of Medical Research (NIMR) and Lifebank created a digital system to support the process of testing suspected COVID-19 cases from reporting, through to triaging, and communication of test results. The system provided a simplified reporting process that automated the prioritization of high-risk COVID cases.

As of January 2022, Nigeria had **33 million** active social media users. Social media (particularly WhatsApp, Twitter, Facebook, and YouTube) are being increasingly integrated into a range of public health interventions. When appropriately deployed, social media can be used to inform, educate, and empower people about health issues; assess public perception; increase rapid access to public health messaging during emergency and non-emergency situations; mobilize community partnerships and action; and collect surveillance data. Implementing digital health promotion and prevention in low resource settings like Nigeria offers the opportunity to reach specific target groups, lower the costs of implementation, and improve the health of the population.



## 8

Health insurance  
must be made to work

Health insurance contribution to total health expenditure in Nigeria is only about 2%. This is a major disincentive for healthcare entrepreneurs and one of the many reasons why health outcomes in the country have not improved in decades. Over 70% of Nigerians pay for their healthcare needs out-of-pocket (one of the highest rates globally - South Africa (5.7%) Malaysia (34.6%)). By implication, given the country's widespread poverty, millions of Nigerians face catastrophe and unbearable health expenditures in the event of any serious illness. According to the 2010-world health [report](#) of the WHO, governments face three fundamental questions in pursuit of universal health coverage for the populace:

- 1) How is the health system financed?
- 2) How to protect people from the financial consequences of ill-health and paying for health services?
- 3) How to encourage the optimum use of available resources?

A functional health insurance scheme is the bedrock of healthcare access, funding, and development. Without Universal Health Coverage in Nigeria, it will be difficult to achieve any meaningful progress in our health care system. In Nigeria, there are two major forms of health insurance: the government-run National Health Insurance Scheme (NHIS) which commenced in 2005 to provide quality, accessible, affordable, equitable, and efficient healthcare; and the private health insurance companies. The NHIS was set up to cater for government employees, organised private sector and the informal sector, children under 5 years and other vulnerable population but has only achieved less than 10% coverage, most of whom are private sector workers, federal employees, and their dependents. According to a [2021 report](#) by NOI Polls 77% of the Nigerian population (8 in 10 Nigerians) do not have health insurance cover. These numbers need to change.

What can we do differently to make universal health insurance work in Nigeria? We believe that political willpower at all levels of government to implement needed reforms will help activate the wheels of change. Part of the needed reforms would be the institutionalisation of technology-driven transparency and accountability systems into the scheme. For starters, all stakeholders in the NHIS architecture must stand up to their responsibilities to build trust in the NHIS, with heavy consequences for any attempts to exploit or sabotage the system. Government must also lead an aggressive awareness especially in the rural dwellings where coverage is near zero. Most importantly, the capitations due to healthcare providers must be realistic and paid promptly each month, whilst enrolees must be allowed to choose/change healthcare providers at will. A well-funded and functional NHIS scheme will incentivise more private health care providers to invest more financial resources and improve their capacity which should lead to better health outcomes for all.





## Digital identity as a healthcare asset

Digital identity management is one of the most critical hurdles towards achieving any progress in digital healthcare transformation in Nigeria. The goal is for healthcare professionals to be able to identify a patient at a distance using the patient’s unique primary identifier: which could be a mobile digital ID or a smart health insurance card presented at point-of-care (and linked to the core residents’ identification database such as the National Identification Number (NIN)). With digitised patient identity, healthcare providers can have immediate access to basic patient information such as legal name, address, date of birth, photograph, emergency contact, occupation, income bracket, blood group, medical history allergies, etc. A low hanging fruit for Nigeria would be the NIN, upon which a digitised health insurance card could be layered.

Total NIN enrolments in Nigeria stood at about 90 million as at September 2022, with an impressive 28.7 million new enrolments in 2021 alone on the back of the NIN-SIM policy announced in December 2020 and compulsory registrations for students seeking to write JAMB examination. As digital culture permeates the society, patients will hunger for real-time mobile access to their health data, in stark contrast to the industry’s ongoing struggles with patient identification. Any NHIS ID will be mapped to a centralised (cloud based) electronic health record (EHR) accessible to accredited healthcare providers, with a layer of access granted to the patient.

Here is a semblance of how a digital ID can be used by a patient (Ada) to access medical care in a virtual setting. This is only for illustration purpose:

### Step 1: Register & schedule

Ada has been having headache and fever for days and needed to consult with a doctor in her preferred hospital virtually. She downloads the healthcare coverage application, registers, and uses her mobile wallet (or NHIS/NIN card details) to identify/authenticate herself. Now she can view her health records and nearby hospitals from a centralised database. She reviews the profile and calendar of her preferred doctor/clinic and schedules an appointment for virtual consultation.

### Step 3: Consultation and Laboratory Visits

During the appointment, the doctor accesses Ada’s electronic health record, asks her necessary questions, and then refers her to a laboratory/diagnostics centre (if necessary). Results of the test are uploaded to Ada’s EHR, reviewed at a follow-up appointment and doctor makes prescriptions for Ada or advise her to present herself to the clinic for further assessment and care. Where a visit to the lab is not necessary the doctor simply adds notes and writes a prescription signed with the doctor’s own digital ID. This prescription is automatically placed on Ada’s EHR and the healthcare application.



### Step 2: Check-in

On the day of her appointment, Ada logs into the healthcare application and verifies her identity with the digital ID on her device; accepts the terms and conditions and then proceeds with her virtual appointment.

### Step 4: Pick up prescription

Ada then specifies that the prescription be sent to her preferred pharmacy (still within the care ecosystem), verifying herself with her digital ID. Once the pharmacy receives and confirms the order, payment is made (If Ada’s health insurance does not cover the medication), the order is filled and shipped to Ada’s home with instructions documented on the healthcare app.



**In summary**, when patients enter a healthcare facility, their primary aim is to become well again and go home without incurring huge health expenditure. In an emergency (such as an accident or cardiac arrest), the minimum expectation is that the healthcare facility should first focus on saving the patient's life (and not ask for huge deposits before the patient can get attention). Pregnant women, children, and the elderly should have access to quality and affordable basic medical care. These are the minimum outcomes Nigerians should expect from her healthcare system. We have identified nine must-haves to begin a digital focused reform of the healthcare system: digital healthcare policy, hybrid healthcare architecture, digital capacity development at medical schools, data collection and use, broadband internet access, increased health-tech investments, digital tech for research, disease monitoring and public health education, universal health coverage and digital identity. These are some of the basics we must provide to make the sector attractive to digital entrepreneurs with the requisite know-how, capital, and ecosystem partnerships. The familiar adage that the more things change, the more they stay the same does not apply to healthcare. For the sector and for millions of Nigerians without access to healthcare, the much-anticipated changes need to be extensive, material, and permanent. A technology-driven reform of the country's healthcare systems is possible, necessary, urgent, and promising. It can improve the efficiency and cost-effectiveness of care, allowing for new business models in the delivery of services. It should be developed with the principles of transparency, accessibility, affordability, scalability, interoperability, privacy, security, and confidentiality. The healthcare challenges in Nigeria present interesting opportunities for digital entrepreneurs, businesses, and the government to invest, build and reform to improve healthcare outcomes.

---

Verraki's [Advisory Practice](#) provides digitally transformative services to the African market, leading the charge to deliver cutting-edge innovation solutions to organisations – unleashing their growth potential. [Talk to one of our experts](#) today to learn more.

## Authors

### **Olaniyi Yusuf** Managing Partner

[olaniyi.yusuf@verraki.com](mailto:olaniyi.yusuf@verraki.com)



Niyi is the Managing Partner at Verraki and leads the Social Sector practice. He served as the Country Managing Director for Accenture in Nigeria and was responsible for all aspects of the firm's strategy, team and operations. Niyi holds a combined honours degree in Computer Science and Economics from Obafemi Awolowo University and worked at Accenture, Arthur Andersen and JKK in a career spanning over 30 years. Niyi has played critical roles in the establishment of industry infrastructure for the Nigerian banking industry including establishment of Interswitch, CRC Credit Bureau and Shared Service platforms.

### **Chigozie Muogbo** Research Lead

[chigozie.muogbo@verraki.com](mailto:chigozie.muogbo@verraki.com)



Chigozie leads the Research and Intelligence function at Verraki. He is an economist and business analyst with over a decade experience in economic research, investment research and market intelligence within the Nigerian financial services sector, cutting across reputable organizations such as Afrinvest, Access Bank and UBA Plc. Chigozie holds a BSc in Economics (first class honours) from Obafemi Awolowo University, MSc in Economics from University of Lagos, and an MPhil in Development Finance (distinction) from University of Stellenbosch Business School.

### **Dr. Kiitan Bolajoko** Health Specialist

[Kiitan.bolajoko@verraki.com](mailto:Kiitan.bolajoko@verraki.com)



Kiitan is a Health Specialist and Senior Advisory Analyst at Verraki. She is a healthcare operations personnel with 4+ years' experience leading dental practices in Nigeria and public health interventions across Nigeria and the UK. She holds a bachelor's in dental surgery from the University of Ibadan and an MSc in Public Health (Health Services Management) from the London School of Hygiene and Tropical Medicine.

## About Verraki

Verraki is a proudly African company partnering with enterprises and governments to accelerate the development and transformation of Africa by providing business solutions designed for Africa. We build and implement technology solutions for seemingly intractable challenges, provide advisory services to drive the capacity and motivation for change, and curate innovative ventures to unlock new sources of growth across our continent.

A fusion of two words: 'Versorium' (Latin for Turn Around) and 'Meraki' (Greek word used to describe the action of doing something with soul, creativity, pouring oneself into a task), Verraki aptly captures the essence of our company; to turn around African enterprises and governments via smart, future-focused solutions and business insights, new growth opportunities, helping to unleash their potential, turnaround their performance and achieve the seemingly impossible, with the sole goal of creating a better future for Africa.

We are committed to enabling the African (start-up) story by supporting high-impact socially-conscious entrepreneurs and catalysing self-sustaining enterprises and governments within the continent to deliver affordable services across critical sectors.

## Our Growth Optimisation Offering

The contemporary business environment is dramatically different from what it was ten years ago, and it continues to evolve at an increasing rate. Consumer trends, macroeconomic shifts, technological advances, changing competitive dynamics, climate change, supply chain disruptions, digitalisation and pandemics are accelerating the pace of change, leaving many businesses struggling to grow amidst the turbulence.

At Verraki, we understand client needs and provide innovative new approaches that help enterprises and governments to explore new market opportunities including expansion into new regions, identification of new channels, targeting of new customer segments, or even the creation of new product categories in a way that moves them from "surviving" to "thriving." Verraki develops and delivers the practical tools, frameworks, and organizational capabilities required to gain competitive advantage, and achieve sustainable growth, utilising customer insights, big data, and proprietary knowledge to achieve a deeper understanding of demand, customers, competitors, and opportunities.

Our seasoned executives and team have a broad range of multibillion-dollar P&L experience delivering long-term growth and optimisation vision, strategies, and management at global Fortune 500 companies.

**Important Disclaimer**

Verraki Insights are produced based on publicly available information which the research analyst(s) consider credible and are meant for general information purposes only. Whilst reasonable care has been taken in preparing this report, no responsibility or liability is accepted either by Verraki, its officers or any of its employees for any error of fact or opinion expressed herein. Any forecasts, estimates and opinions set forth in this report constitute the analyst(s) position as at the date and time of this report and may not necessarily be so after the report date and time, as they are subject to change without notice. This document may make descriptive reference to trademarks that may be owned by others. The use of such trademarks herein is not an assertion of ownership of such trademarks by Verraki and is not intended to represent or imply the existence of an association between Verraki and the lawful owners of such trademarks.



## Contact

### OFFICE ADDRESS

4th Floor, Mansard Place,  
Plot 927/928 Bishop Aboyade Cole Street,  
Victoria Island, Lagos, Nigeria.

### NUMBER

+234 (1) 453 7151,  
0901-VERRAKI

### EMAIL

[info@verraki.africa](mailto:info@verraki.africa)

### WEBSITE

[www.verraki.africa](http://www.verraki.africa)



Copyright © 2022 Verraki

**verraki**  
Business Solutions for Africa