

Health technology in Nigeria: What are Nigerian startups working on?

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Abstract

Nigeria's healthcare system continues to face significant challenges, including limited access to quality care, insufficient infrastructure, and underfunded institutions. In response, health technology startups have emerged as innovative players, offering scalable, sustainable, and impactful solutions to address these systemic barriers. This commentary explores the diverse operational models—Business-to-Consumer (B2C), Business-to-Business (B2B), and Business-to-Government (B2G)—adopted by Nigerian health technology startups and evaluates their contributions to improving healthcare access, delivery, and efficiency. Through the use of telemedicine, digital diagnostics, electronic medical records, supply chain innovations, and mobile surveillance tools, these startups are filling critical gaps in the health system. However, the sector continues to grapple with regulatory uncertainty, infrastructure deficiencies, and data privacy concerns. By analyzing case studies such as Helium Health, LifeBank, Clafiya, and Wellvis, this paper highlights the current impact and future potential of digital health solutions in Nigeria. It concludes with strategic recommendations for policy reform, infrastructure investment, and stakeholder collaboration to support the sustainable growth of health technology in the country.

Keywords: business-to-consumer models, business-to-business model, business-to-government model, government-to-consumer model, health tech in Nigeria, health tech startups in Nigeria, artificial intelligence, telemedicine

Background

Nigeria's healthcare system faces numerous challenges, including an inadequate healthcare workforce, limited infrastructure, inequitable access to healthcare services, and underfunded public health institutions.¹ These factors have resulted in weak health indicators, such as high maternal and infant mortality rates and low life expectancy.¹ The burden on healthcare facilities in Nigeria is disproportionately high compared to the size of the population, which is more than 200 million people.² As such, there is a critical need to reform and strengthen the healthcare system through innovative, scalable, and sustainable solutions.

Recently, there has been a focus on the adoption of health technologies as a means of addressing these system barriers,³ with health technology startups devising innovative systems and services to increase support for healthcare and its pathways.⁴

Some of these startups focus on enhancing care access, data capture, diagnostics, and patient involvement to ensure efficiency for all stakeholders in the system³ — especially crucial in highly remote and underserved areas with limited access to healthcare.

The COVID-19 pandemic led to an increase in the use of technology for health services. In partnership with HealthConnect 24/7, for instance, the Lagos state government launched the Eko Telemed initiative to facilitate remote medical consultations during the lockdowns,⁵ and startups such as Mobihealth and Tremendoc expanded their services during this period as well.^{6,7}

Other startups have also demonstrated notable innovation in improving healthcare in Nigeria in recent years. Ubenwa, for instance, applies AI in innovative ways, such as in the diagnosis of birth asphyxia through the analysis of infants' cries⁸ — a technology that could reduce neonatal deaths in resource-poor places like Nigeria. And Helium Health aids offers electronic medical records systems that encompass billing and stock control on one platform.⁹ These companies demonstrate how technology can be utilised in healthcare to improve services, especially in diagnostics, management, and system efficiency.

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Given the fast-paced and constantly evolving nature of Nigeria's health technology sector, it is important to study how different startups operate. This includes examining their business models in terms of scalability, sustainability, and overall impact on healthcare. This commentary analyses the approaches of Nigerian health tech startups operating under business-to-consumer (B2C), business-to-business (B2B), and business-to-government (B2G) frameworks to meet particular health system demands. It also discusses the gaps within the sector and makes recommendations for policy and structural reforms to support the sector's growth.

Business-to-Consumer Model

The number of business-to-consumer (B2C) health technology startups in Nigeria has grown considerably in recent years, aided by regulatory frameworks like the Nigeria Start-up Act (NSA), 2022, created to support startups and technology-related talents.¹⁰

Many of these startups are working to address the costs of and lack of access to essential healthcare in Nigeria,¹¹ particularly for people living in rural and underserved communities, where traditional healthcare systems have often fallen short.¹² Telemedicine, for instance, has greatly improved healthcare delivery, allowing patients with poor access to tertiary healthcare institutions to access specialist consultations without the need to travel long distances. This has proven beneficial both for patients with chronic diseases and for the clinicians managing and providing care.¹³ Companies like Clafiya, Rigourplus, Zurihealth, and Tremendoc offer 24/7 video-conferencing and chat options, and patients can also schedule home visit consultations, while startups like HealthTracka facilitate home-based diagnostic testing for rare diseases, enabling patients and providers to order lab tests without physical visits.¹⁴ Telemedicine also proved crucial in the pandemic response by enabling remote screenings and reducing exposure risks.¹⁵ Use of these platforms can improve wait times, leading to a more efficient and equitable healthcare system.¹⁶ There are some challenges in their use, however, including poor internet access in rural communities and high costs associated with technological requirements.¹⁷

The post-COVID-19 era has also seen growth in the number of online (internet-based) pharmacies providing medications and health-related goods; these include myMedicines, Drugstore, Medplus online, Pharmarun, and Famasi Africa. These pharmacies offer convenience, privacy, efficiency, and increased access to medications. They do face challenges, however, including poor regulatory compliance, illegal dispensing of prescription-only drug products, and the dispensing of adulterated and substandard medications.¹⁸ In 2021, the Pharmacists Council of Nigeria (PCN) released the Online Pharmacy Regulations Policy, which strengthened the laws regulating online pharmacy practice.¹⁹

Health insurance penetration in Nigeria remains alarmingly low, with a study in Lagos revealing that 90.5% of respondents lacked coverage.²⁰ Digital health insurance startups like Wella Health and myCovergenius are addressing this gap by offering affordable micro-insurance plans. Wella Health, for instance, covers teleconsultations, medications, and diagnostics for ₦500 monthly, while myCovergenius offers annual coverage up to ₦550,000 for ₦3,500 per month. Despite these innovations, however, low awareness and uptake—especially among informal sector workers—remain key challenges.²⁰

By leveraging telemedicine and other digital platforms, these startups are reducing the cost of care,¹⁵ and keeping patients more engaged in the process and activities of managing their health—particularly important in a country where most people might otherwise lack access to basic healthcare services.¹⁵

These B2C health tech startups are, however, face significant challenges that hamper their effectiveness. It can be difficult to secure funding,²¹ and limited infrastructure, such as unreliable internet and electricity, can make it challenging to deliver services effectively.¹³ The process of navigating the regulatory hurdles in Nigeria can consume resources and time that these startups usually cannot afford.²²

Despite these obstacles, the potential for B2C health tech startups in Nigeria's healthcare is great. With the right support and collaboration—from the government, the private sector, and international partners—B2C health tech startups could dramatically improve healthcare access and quality across the country.

Business-to-Business Model

As Africa's most populous nation, Nigeria faces a substantial disease burden characterised by persistent infectious diseases, rising rates of non-communicable conditions, and ongoing maternal and child health challenges.²³ While robust data management systems play a pivotal role in enhancing Nigeria's healthcare system, the country's health system faces persistent challenges in data availability, quality, and utilisation. Research has identified multiple deficiencies in health data management, including incomplete records, inconsistent reporting practices, delayed submissions, and overall poor data quality. A key contributing factor to these issues is the continued dependence on manual data entry systems, which are prone to errors and inefficiencies.²³

Digital B2B health companies like Helium Health are working to enable end-to-end digitisation of electronic medical records, hospital operations, billing, financing, pharmacies, and laboratories.²⁴ With its Helium OS software, Helium Health envisions a transformative approach to healthcare interoperability in Nigeria, aiming to create a unified network linking all medical facilities. Their proposed system would

assign each patient a unique Helium Health ID, enabling seamless access to medical records across any partner hospital. This initiative initially faced significant resistance from healthcare institutions, which were reluctant to adopt the integrated platform.²⁵ But while Nigerian hospitals have traditionally preferred to maintain exclusive patient relationships, and have had little incentive for system interoperability, a growing market has emerged for structured digital record-keeping solutions. Electronic Medical Record (EMR) systems effectively eliminate the inefficiencies of manual documentation, and Helium Health's platform incorporates standardised medical coding protocols while implementing automated alerts for critical health information that might otherwise be overlooked in paper-based records.²⁵

Another B2B startup is addressing the country's blood shortage. Data from the National Blood Service Commission (NBSC) reveals a critical shortfall in Nigeria's blood supply, with voluntary donors contributing only 27% (approximately 500,000 pints) of the nation's annual requirement. This leaves a concerning 73.3% deficit in blood availability each year, highlighting the significant challenges of meeting transfusion demands.²⁶ LifeBank NG, a digital health innovator, provides on-demand distribution of blood and blood products. They have supplied more than 30,000 units of blood to Nigerian healthcare facilities,²⁶ utilising WHO-recommended cold chain technology to ensure product integrity.²⁷ The organisation's work specifically targets Nigeria's maternal health emergencies, particularly postpartum haemorrhage (PPH), which accounts for around 75% of maternal mortality in sub-Saharan Africa.²⁸ Through strategic partnerships like its collaboration with MSD for Mothers, LifeBank NG exemplifies how public-private alliances can enhance last-mile delivery of essential medical commodities in resource-constrained settings.²⁹ The organisation's innovative technological solutions also include its SmartMedi platform, which harnesses blockchain technology to improve medication tracking and combat counterfeit drugs in the supply chain.³⁰

LifeBank NG has also distributed 4,000 doses of heat-stable carbetocin, a WHO-prequalified uterotonic proven in clinical trials to be equally effective as oxytocin for PPH management while offering superior stability in tropical climates.³¹ The organisation's work demonstrates how integrated solutions combining technology, strategic partnerships, and evidence-based medical distribution can strengthen health systems in low-resource environments.

Business-to-Government and Government-to-Consumer models

During the COVID-19 pandemic, the Nigeria Centre for Disease Control (NCDC) established phone lines to help people conduct assessments and submit reports remotely. These lines, however, quickly became overloaded and unable to handle the influx of calls from the general public, who had no

other resources available by phone. But now, Nigeria has one of the world's fastest-rising rates of mobile phone ownership, and smartphone users are projected to exceed 140 million by 2025.³² This has made it possible to provide healthcare services to close the gaps in the availability of medical personnel and facilities, made worse by the COVID-19 outbreak³³ and by the lack at that time of a smartphone application that the general population in Nigeria and around Africa could use to aid in symptom evaluation and sending a report to the NCDC.³⁴

Using a B2G model, Wellvis has developed a public-facing tool, deployed through mobile devices, to facilitate the surveillance of COVID-19 by supporting risk assessment processes and enabling direct self-reporting to disease control bodies. The tool is available on the wellvis.org platform as a web application, and a version of Unstructured Supplementary Service Data (USSD) is available to assist those without smartphones or internet access, expanding the tool's reach to include more than 180 million mobile users nationwide.³⁴

NCDC formally adopted the tool as one of the official self-assessment instruments for use across the country, and changes were made to increase the tool's usefulness for surveillance. The application enables users to assess their risk of COVID-19 by answering a series of questions. In order for the NCDC to contact individuals who are classified as high risk and may require evacuation to an isolation and treatment facility, users may self-report their address and contact details. They can also have private conversations with doctors virtually without ever leaving the tool environment.³⁴ The platform includes additional information as well, addressing, for instance, any false reports, and providing citizens with a convenient means of taking preventative or therapeutic action from the convenience of their homes.

A government-to-consumer business model is being used to address maternal and infant mortality. Nigeria accounts for an estimated 10% of the 287,000 maternal deaths that occur worldwide each year.³⁵ The Nigerian National Primary Health Care Development Agency (NPHCDA) partnered with Qualcomm's Wireless Reach Initiative, Etisalat Nigeria, Evidence for Action, Vecna Technologies (through the Vecna Charitable Trust), and InStrat Global health solutions to reduce maternal and infant mortality through the use of mobile technology. This program supplies midwives and other healthcare professionals with tablets and connectivity so they may record patient health data at the point of service and help with the diagnosis and analysis of clinical problems that contribute to maternal and newborn deaths.³⁶

Vecna Technologies, for instance, offers a mobile EMR system that contains data about patients' medical histories, conditions, and therapies. Known as the Clinical Patient Administration Kit (CliniPAK), the system monitors patient care

and produces treatment and result reports. When paired with local wireless network capability, the system allows clinicians to precisely track and report health information with patients, public health authorities, and each other.³⁶

In the summer of 2014, data from four Nigerian states, which deployed the CliniPAK system, showed high rates of skilled birth attendance—100% in Kano, 96% in Anambra, 90% in FCT, and 87% in Ondo. Antenatal care during the first five months of pregnancy varied, with FCT reaching 31–44% of expectant mothers, Kano 20–24%, Anambra 14–24%, and Ondo 15%. Immunisation programs were also effective; Ondo vaccinated 529 children against polio, 452 against hepatitis B, and 800 against tuberculosis, while other states had slightly lower figures. The CliniPAK program supported timely and efficient care by reducing redundant procedures and improving maternal and child health outcomes.³⁶

Challenges and Recommendations

Regardless of the specific business model adopted, the Nigerian health tech industry has been impactful and successful. There are, however, some challenges which hinder its advancement; we highlight a few of them here, along with some recommendations.

Regulatory gap

The National Health ICT Strategic Framework, created in 2015, does not adequately address the regulatory and policy gaps that exist in the healthcare industry, forcing entrepreneurs to rely on their traditional licenses to operate.³⁷ Some regulatory gaps include disorganised regulation, a lack of regulatory mechanisms for insurance coverage, regulatory complexity due to diverse digital health tools, insufficient data protection laws, and a lack of technical expertise among regulatory staff.³⁸ Addressing these issues will require continuous collaboration between the relevant stakeholders of the health technology industry and the regulatory affairs bodies.

Inadequate infrastructure

Without a comprehensive electric and digital infrastructure, addressing the digital divide across the country remains a significant challenge.³⁹ Between March 2017 and March 2019, video training and digitisation initiatives were brought to 62 healthcare facilities in Ondo State, located in the southwest region of Nigeria; this initiative proved ineffective, however, because many of the facilities lacked access to a basic 3G mobile network.⁴⁰ The development of mobile health solutions and low-cost medical devices that do not require extensive infrastructure will advance access to healthcare services for persons in rural areas.⁴¹ Priority should also be placed on infrastructure development in rural areas. The Health Electrification and Telecommunications Alliance (HETA), for instance, provided solar energy to 12 primary healthcare centres across Ondo, Delta, and Bayelsa states with favourable outcomes, including a reduction in generator

reliance and fewer interruptions to critical services and vaccine storage.⁴²

Data Privacy

Issues with data privacy can be attributed to a lack of awareness among healthcare professionals and patients, interoperability challenges, a lack of comprehensive legislation tailored to the unique needs of the health tech sector, and the robust quantity of patient data processed in the sector.⁴³ Training and awareness programs for healthcare practitioners, advanced data encryption, regular audits, and compliance checks are measures that can be taken to ensure that the privacy of patient data is assured.⁴⁴

Conclusion

Nigeria's promising health technology sector continues to grow. While different business models have been adopted and have yielded positive outcomes, there is still a vacuum in this sector, precipitated by challenges such as data privacy, regulatory gaps, and inadequate infrastructure. Implementation of the recommendations suggested here could help address these challenges.

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