Communication

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Truth Before Tools: Grounding Nigeria's Digital Health Ambitions in Reality

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Abstract

Across Africa, governments are embracing digital health by launching ambitious platforms for electronic records, AI applications, and national data exchanges. Nigeria's recent Nigeria Digital in Health Initiative signals similar intent. Yet ambition without foundations, such as a reliable identity, usable addresses, and enforceable standards, risks failure. This commentary argues that Nigeria's digital health trajectory cannot succeed without first addressing key system enablers: accurate population data, stable power, and strong governance. Drawing on evidence from Nigeria, South Africa, and Ghana, we show how these foundational elements shape readiness. South Africa demonstrates that a Master Patient Index, facility lists, and interoperability standards form the backbone for integrated systems. Ghana's national ID and early telemedicine scale-up demonstrate the value of identity systems, while persistent data silos highlight the limitations of tools without effective coordination. Nigeria, by contrast, faces repeated census delays, weak addressing infrastructure, and unreliable electricity, constraints that stall even well-designed platforms. Donors and ministries must resist investing primarily in front-end tools or fragmented pilots. Instead, funding should be tied to verifiable milestones, such as the implementation of broadband access in clinics, the integration of national IDs into health records, and the national adoption of open interoperability standards. "Truth before tools" is not pessimism; it is the shortest route to digital health systems that work for people.

Keywords: digital health; interoperability; Nigeria; South Africa; Ghana; policy; infrastructure

1. Summary Box

- Nigeria's plan for digital health is noble. Still, its shaky foundations, postponed censuses, incomplete identification systems, inadequate address systems, erratic power supply, and limited governance all loom large on the national scale [1–4,7–9].
- South Africa demonstrates that investment in patient IDs, standards for interoperability, and facility registries provides the backbone for a functional digital health system [5,10–12].
- Ghana demonstrates that national IDs and telemedicine scale-up can deliver early wins; however, weak data governance and siloed systems remain a cautionary note [2,6,13].
- Donors and ministries must fund the "plumbing" of identity, addresses, standards, power, and connectivity before celebrating the development of shiny apps or national health exchanges [9–12,14–16].

2. Introduction

When glossy reports describe health information exchange in Africa, they often depict images of strong, seamless, and nationwide systems. For practitioners, the reality is less glamorous. Nigeria is frequently portrayed as on the verge of digital transformation, yet frontline experiences suggest otherwise. The question is not whether digital tools matter; they do. However, the question remains whether Nigeria is prepared for a national-scale implementation of these tools.

South Africa offers a useful contrast, demonstrating that strong governance, identity, and interoperability frameworks are prerequisites. Ghana demonstrates gradual advancements in identity and telemedicine, but also faces the risk of siloed data.

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The reasoning is simple: truth before tools. Groundworks come before identity, addresses, facility lists, standards, and utilities. Without such preparation work, one would be constructing castles in the air while clinics operate in the dark and without bandwidth.

The Missing Plumbing: Identity, Addresses, and Census Data

Digital health involves understanding who the patient is, where they are, and how many need care. Nigeria has issues with all three.

On mail addresses, only 20% of Nigerians can get mail at their residences; close to 80% of homes and businesses cannot be accessed for deliveries. The adoption of the what3words platform made by Nigerian Postal Services, NIPOST, in 2017 was an attempt to bypass this chronic weakness [1]. While innovative, it highlights the vulnerability of fundamental infrastructure for household-based care, logistics, and telemedicine.

In terms of identity, Nigeria has registered more than 121 million citizens in its National Identity Number (NIN) system, which accounts for approximately 40% of the estimated 300 million population, leaving a significant gap toward establishing a universal patient identifier [3]. Coverage gaps persist, however, and NIN is not often used for patient matching at health facilities. In contrast, Ghana's "Ghana Card" has achieved near-universal coverage, with real-time cross-agency sharing across revenue, insurance, and telecommunications [2]. The takeaway is unmistakable: identity systems are not just necessary; they need to become integral to service delivery.

Regarding population data, Nigeria has consistently delayed its census, most recently in 2023, resulting in a 17-year gap without a national count [4]. This hinders denominator-based planning for vaccines, facilities, and human resources. In contrast, South Africa conducts frequent censuses, providing it with more reliable population data for health planning.

Nigeria's Digital Health Landscape: Ambition Without Foundation

Nigeria has recently re-launched its Nigeria Digital in Health Initiative (NDHI), with the promise of electronic records, a health information exchange, standards, and governance committees [9]. It is good to hear such rhetoric. However, on the ground, most clinicians are still paper-bound.

Empirical evidence links EHR implementation failures to infrastructural issues, including unreliable electricity, poor internet connectivity, inadequate hardware, and insufficient funding [7]. Health workers are eager but limited. Telemedicine faces similar challenges: reviews often cite power outages, bandwidth shortages, a lack of controls, and a shortage of technical expertise as the most common difficulties [8].

The risk is familiar. Nigeria has had a history of fragmented, donor-led platforms. For instance, HIV programs once operated more than ten parallel EMRs that did not communicate with each other, rendering national patient tracking impossible [7]. Unless interoperability rules are enforced and utilities prioritized, NDHI may replicate this siloed model at a greater scale.

South Africa's Experience: Foundations First

It demonstrates the significant impact that can be made when governments prioritize "boring but essential" infrastructure. Its National Digital Health Strategy (2019–2024) prioritizes a Master Patient Index tied to the national ID, a Master Facility List, and a National Health Normative Standards Framework for Interoperability, initially released in 2014 and refreshed in 2021 [10,11,15]. These tools enable systems to communicate with one another and establish a governance framework for exchanging health data.

South Africa also benefits from near-universal ID coverage, regular censuses, and comparatively better infrastructure. Although not perfect, load-shedding still disrupts services; most facilities have mains electricity and growing broadband coverage [5]. A nationwide patient registration system is already operational in public facilities, and conformance testing enforces adherence to standards [12,15].

These investments are not glamorous. They do not receive the same level of publicity as AI chatbots or blockchain pilots. Nevertheless, they help digital health systems scale, connect, and endure.

Ghana: Proof of Concept and Cautionary Tale

Ghana is located between South Africa and Nigeria. The Ghana Card has facilitated over 18.9 million registrations, with about 18 million cards issued and actively linked across various agencies serving a population of 34 million, which amounts to 53% coverage [2]. This demonstrates the potential of a universal ID system in West Africa.

Ghana also led a pilot of telemedicine in 2011, which it expanded nationally by 2016, demonstrating that simple digital tools can increase reach when governance endorses them [13,14]. It still has weaknesses, however. Hospitals still

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rely heavily on paper, and digital systems are often still siloed [6]. Data governance and interoperability frameworks are still in development, which constrains the full benefits of identity and telemedicine.

For Nigeria, Ghana is both an inspiration and a warning: it is possible to move forward, but without enforceable governance and interoperability, silos persist.

What Donors and Ministries Must Prioritize

The takeaway from these three countries is simple: foundations first. To be successful, Nigeria would do well to prioritize these five areas:

1. **Unique patient identity in care:** Requires the use of NIN in healthcare systems, with adequate privacy protection [3,9].
2. **Addressability:** Whole-country address systems (digital or hybrid) that enable accurate location of patients for care and logistics [1].
3. **Provider and facility registries:** Create one, current Master Facility List [10,15].
4. **Interoperability rules with enforcement:** Adopt open standards (e.g., HL7 FHIR) and require conformance testing [11,15].
5. **Power and connectivity at point of care:** Fund electricity and broadband before or alongside software [7,8].

Global frameworks reinforce these priorities. The WHO's Global Strategy on Digital Health (2020–2025) emphasizes the need for robust governance, comprehensive workforce training, and robust foundational digital infrastructure before scaling up solutions [16]. The African Union's continental frameworks echo this, urging member states to prioritize standards, IDs, and infrastructure. Nigeria's partners should align with these imperatives (see Table 1 and Figure 1).

Table 1. Key System Foundations Across Nigeria, South Africa, and Ghana.

Dimension	Nigeria	South Africa	Ghana
Unique ID	NIN enrolment > 121M; limited health use [3]	Universal national ID used in health [5,10]	Ghana Card with 18.9M enrolments [2]
Address system	Weak; 20% coverage; what3words adopted [1]	Functional postal and civic addressing [5]	Stronger urban addressing; rural gaps remain [13]
Census data	Last census 2006; repeated delays [4]	Regular censuses; reliable denominators [5]	Regular census updates [13]
Infrastructure	Frequent power cuts, poor connectivity [7,8]	Load-shedding but widespread broadband [5]	Mixed; better telecoms than Nigeria [6]
Interoperability	Fragmented, siloed systems [7,9]	National standards framework, enforced [10,14]	Siloed systems; weak enforcement [6,13]
Governance	NDHI launched; early stage [9]	National strategy (2019–2024) [10]	Emerging frameworks; partial implementation [6]

Table 1 Key system foundations in digital health across Nigeria, South Africa, and Ghana.This comparative snapshot highlights readiness gaps in identity, infrastructure, and governance that must be addressed for digital health systems to scale sustainably.

Figure 1 "Truth Before Tools" Infographic.

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Figure 1. Summary infographic highlighting foundational gaps in Nigeria's digital health readiness, lessons from peer countries, and key priorities for national and donor investment.

3.Conclusions

Nigeria's digital health ambition is real—but ambition without foundation is fragile. South Africa demonstrates that identity, standards, and governance can foster conditions for effective exchange. Ghana demonstrates both progress and limits. Donors, ministries, and global agencies must resist the temptation to fund flashy pilots or prematurely celebrate "national" exchanges. Instead, they should invest in plumbing: IDs, addresses, registries, standards, and electricity.

"Truth before tools" is not pessimism; it is the most direct route to digital health that works for citizens, clinicians, and systems alike.

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