

African digital health strategic plans analysis: key weaknesses in contextualization, intervention focus, and technological foresight

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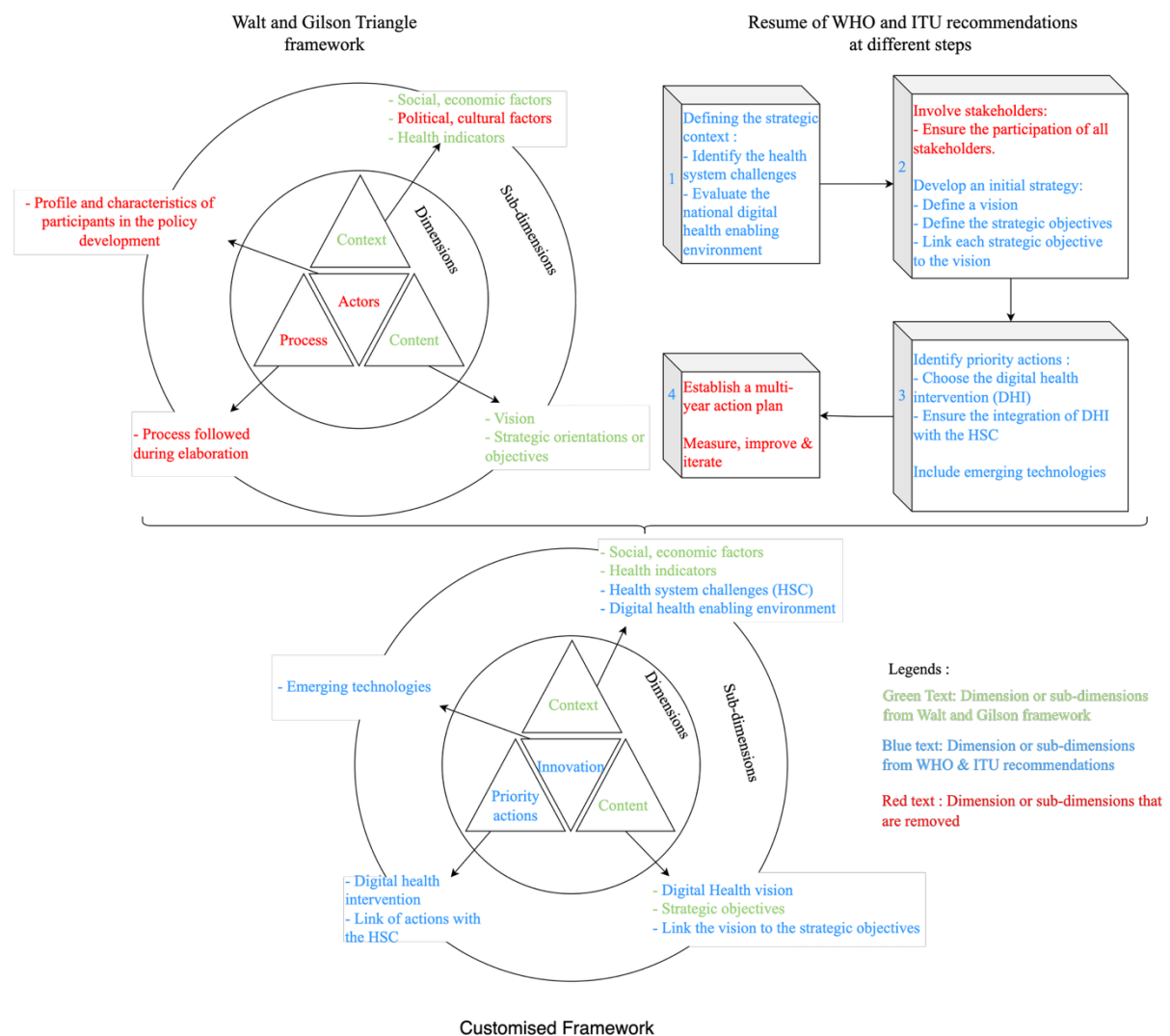
Contribution

BS and PS designed the research project. BS and PS conducted data compilation and analysis. PS and BS drafted the first version of the manuscript. NM, GD, and LGBS validated the methodological approach. NM, GD, JNN, and LGBS improved the manuscript. All authors participated in the final revision of the manuscript, corrected it, and approved it for submission.

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Supplementary Information



Supplementary Figure 1: Customization of the Conceptual framework of the study.

Supplementary Table 1 Country contextual information

Country	Period covered by the PS	Total population (inhabitants)	GDP/capita (USD/capita) or Poverty rate	Life expectancy at birth (years)	Infant mortality rate (per 1,000 live births)	Maternal mortality rate (per 100,000 live births)	Number of doctors/inhabitant (per 10,000 inhabitants)
Guinea	2021-2025	12,559,623 in 2020	848 USD; Poverty rate: 43.7%	59 on average	67	724	6.32
Cameroon	2020-2024	25,492,353 in 2019	Poverty rate: 40.2% in 2001, 39.9% in 2007, 37.5% in 2014	52 on average	NA	NA	NA
DRC	2020-2024	NA	NA	56.5 for men 59.7 for women	NA	NA	NA

Tunisia	NA	NA	NA	74.4 on average	NA	NA	NA
Malawi	2020-2025	17,600,000 in 2018	327 USD	63.9 on average	NA	439	NA
Burundi	2020-2024	NA	NA	NA	NA	NA	NA
Botswana	2020-2024	NA	NA	54.4 years (48.8 males: and 60 females)	57	193	NA
Ethiopia	2021-2030	NA	NA	NA	NA	NA	NA
Ghana	2023-2027	NA	NA	NA	NA	NA	NA
Namibia	2021-2025	2,480,000 in 2016	NA	61 years for males and 66 years for females	44 (under the age of five)	NA	NA

Zambia	2022-2026	18.4 million in 2021 (population growth rate of 2.8 percent)	In 2010, Over half (61%) of the population lived below the poverty line	NA	278	41	NA
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Supplementary Table 2 Comparative analysis of the Strategic orientations

Approach	Strategic axis and objectives	Goal
focus on the enabling institutional environment	Cameroon: seven axes, four of which are strictly institutional and planned to be implemented before digital infrastructure and services. Namibia: The axes are the WHO's seven pillars; the strategic objectives are divided by pillar, but the country is planning short-term pillars for governance and leadership, strategy and investment, and skills development. Tunisia: The axes are the seven pillars of the WHO, the objectives are divided into three phases: the first phase plans to establish the foundations and governance for digital health, the second phase plans to develop and deploy digital services, and the third phase will continue implementation and consolidation. Botswana: The axes are the seven pillars, with institutional strengthening priorities according to the plan. According to the established timeframes, digital solutions, infrastructure, and interoperability are secondary priorities.	These countries believe that without a solid institutional foundation, any digitalization would remain fragmented.

focus on the deployment of digital health interventions, interoperability, and data	Burundi: three axes and 11 objectives; all axes and objectives focus on the deployment of digital health interventions and infrastructure improvement. Only two objectives in axis 2 provide for institutional strengthening through leadership/governance and adequate financing. DRC: all objectives focus on interoperability and skills building, infrastructure, and digital health interventions. Guinea: proposes two axes with five objectives. One with four objectives for strengthening the health system through digital health interventions, and the other with a single objective for an enabling environment for digital health. Malawi: 7 axes proposed with 18 strategic objectives; only one axis aims to strengthen the institutional framework by improving the coordination of investments in digital health.	The perceived urgency is to quickly develop clinical tools and integrated data, with governance being adjusted as deployment progresses.
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Hybrid	Ghana: Out of 10 objectives, five relate to enabling (governance, environment, resources, financing), and five relate to digital health interventions and data. These objectives do not have a time horizon in the SP. Ethiopia: Two of the four pillars are "Data Hub" and "Solutions and Services," with the governance axis appearing only as a supporting component. Zambia: The axes are the 7 pillars of the WHO. Depending on the timeframe, the plan plans to implement initiatives from all axes in a balanced manner.	The two approach advance together, with balanced objectives.
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Supplementary Table 3 Alignment of digital health interventions with health system challenges

Country	Main DHI planned	Stated challenges	Alignment level
Cameroon	Targeted/untargeted client communication; EHR; Telemedicine; Clinical decision support; HR management; Supply-chain; Civil Registration and Vital Statistics (CRVS).	Reduction of mortality & morbidity Improving the quality of care Institutional capacity building Improving access to care	High

DR Congo	EHR ; Telemedicine; Health provider training ; Imaging; HR; health-financing; Supply-chain; Data warehouse & GIS.	Reduction mortality & morbidity	High
Burundi	EHR & disease-specific modules; Clinical decision support; referral coordination; HR & supply-chain; health financing	Improving the quality of care Improving access to care Optimised management of resources	Moderate
Botswana	EHR ; Health provider scheduling ; data collection/visualisation.	Improving the quality of care Institutional capacity building Optimised management of resources Health information management Development of technological infrastructures	Low
Namibia	Untargeted client communication ; EHR	Reduction of mortality and morbidity Institutional capacity building Optimised management of resources Improving access to care Development of technological infrastructures	Low