

CLOSING THE DIGITAL DIVIDE: MORE AND BETTER FUNDING FOR THE DIGITAL TRANSFORMATION OF HEALTH IN AFRICA

Key facts and figures for Africa

- **38/54** - Countries with a national digital health strategy¹
- **66%** - Percentage of people without internet access²
- **15% vs 50%** - Digital divide in internet access between rural and urban areas²
- **2%** - Domestic expenditure on health as a % of GDP³
- **30%** - Level of out-of-pocket expenditure on health³
- **\$4.1 billion** - Funding needed over 5 year period to support the digital transformation of health systems
- **Unknown** - National/regional spending on digital health

Investing in digital health transformation in Africa

The world's health systems are changing rapidly, driven by the introduction of digital technologies, artificial intelligence and the use of large data sets. The digital transformation has the potential to expand access to health care and accelerate progress towards the Sustainable Development Goal target of reaching universal health coverage by 2030. We have reached a stage in the digital health journey where

we need to think beyond enhancing health systems through the introduction of individual digital technologies or solutions and instead consider the overall digital transformation of health systems.

Based on Transform Health's report *Closing the digital divide: More and better funding for the digital transformation of health*⁴ this brief explores the situation in Africa, with recommendations to guide investments and action in the region towards health for all in the digital age.

¹ Governing Health Futures 2030. [Compilation of national digital health policies and strategies](#). Accessed 28 November 2022.

² ITU. [Measuring Digital Development: Facts and Figures 2021, 2022](#).

³ [World Bank databank](#). Accessed 25 November 2022.

⁴ Transform Health. [Closing the digital divide: More and better funding for the digital transformation of health](#). Basel: Transform Health; 2022.

The status of digital transformation of health in Africa

Digital transformation of health is well underway in Africa. Whilst levels of digital maturity vary, with countries at both extremes, most African countries are introducing an increasing range of digital solutions to both public and private health care. Over the past decade, a surge of digital health technologies has revolutionised health delivery, disease prevention and health commodity management. Digitised health information systems have made data more accessible, facilitated better planning and forecasting, and improved disease surveillance.

The majority of African countries have a dedicated digital health strategy that is incorporated into health-sector strategic plans and aligned to broader national digital transformation agendas. Most of these digital health strategies are aligned with the WHO-ITU National eHealth Strategy Toolkit and outline plans to strengthen each of the digital health building blocks, improve interoperability, and reduce system and data fragmentation.⁵ However, very few African digital health strategies are accompanied by a costed implementation plan.

Key informants in the region who were interviewed for Closing the digital divide note that implementation of digital health strategies is uneven, with persistent barriers standing in the way of faster and more equitable digital transformation. Across the continent, countries cite gaps in digital literacy and IT skills, weak infrastructure, uncoordinated systems and insufficient internet capacity. Despite the introduction of digital systems, regular power outages hinder the use of the digital systems and force healthcare providers to resort back to paper. This has resulted in resistance to digital

solutions, which are viewed as a nuisance and unnecessary extra work.

Many digital health solutions are being introduced as pilot projects but are not integrated into the health service or brought to scale. The proliferation of digital health actors in Africa has contributed to fragmentation and created governance challenges for policymakers. In Kenya, for example, more than 230 different organisations have been identified as being active within the digital health space with more than 123 projects.⁶ Investments in digital health are also frequently concentrated on health information systems and individual disease responses rather than patient-centred health systems. Uneven digital transformations are also contributing to health inequities with digital health projects often being implemented in large urban centres with fewer projects in less densely populated areas.⁷ Levels of digital exclusion became evident during the COVID-19 pandemic during which critical clinical services were stretched to the limit and disconnected communities were unable to access health services.

Overview of digital health funding in the region

African health systems comprise a mix of government-funded public healthcare, private healthcare providers, donors, and non-governmental and faith-based organisations. According to the World Bank, sub-Saharan African countries spend an average of 4.97% of GDP on health, a lower rate than at the start of the century and far below the global average of 9.83%.⁸ This equates to an average of just US\$ 190 spent on health per capita (compared to the global average of US\$1,459 per capita). Out of pocket expenditure accounts for around one-third of current health expenditure across the continent.⁹

⁵ World Health Organization & International Telecommunication Union. [National eHealth strategy toolkit](#). International Telecommunication Union. 2012.

⁶ Gitau RN. [Assessing eHealth knowledge diffusion within the public health sector in Kenya using social network analysis](#) (Master's thesis). University of Cape Town, Faculty of Health Sciences. (2020).

⁷ Njoroge M, et al. [Assessing the feasibility of eHealth and mHealth: A systematic review and analysis of initiatives implemented in Kenya](#). BMC Research Notes. 10, 90 (2017).

⁸ [World Bank databank](#). Accessed 25 November 2022.

⁹ [World Bank databank](#). Accessed 25 November 2022.

To date, most funding for the digital transformation of health systems has come from donors, including CDC, USAID, PEPFAR, Global Fund, GIZ, and the Gates Foundation, among others, with Ministries of Health mainly providing funding for coordination of digital health divisions. Private players are also dominating the space by investing in digital health systems for various purposes, including telemedicine, supply chain, diagnostics, and commodity management. Over the past decade, there has also been a sharp increase in start-up funding for digital health, particularly in hubs such as Kenya, Nigeria and South Africa.

Many African countries lack bodies to effectively coordinate external (and internal) financing and high dependence on external funding has contributed to limited national ownership of digital health. To redress this, efforts are being made by many national governments to strengthen the host government's coordination role and to require key stakeholders (including donors and development partners) to align their investments with implementation of national digital health strategies.

Information about the amount that African countries are investing in digital health is not publically available. Digital health is not typically highlighted within national health budgets and expenditure on digital health is not routinely reported. Self-reported data on Ethiopia, Ghana, Mali and Nigeria collated for the Global Digital Health Index indicates that less than 1% of public health spending is for digital health and Benin reports between 1 and 3%. In the same Index, Cape Verde, DRC, Sierra Leone and Uganda state that no information is currently unavailable.¹⁰

Priority investment areas in Africa

Regional research and key informant interviews for *Closing the digital divide* highlighted three main priorities for investment in order to accelerate the equitable digital transformation of health.

1 Infrastructure - While efforts have been made by national governments in the region to improve power, internet connectivity and storage systems, gaps still exist. Marginalised communities, especially in rural areas, still lack network coverage; hence, digital tools requiring the internet cannot be used there.

2 Systems Interoperability - Greater interoperability is needed across all facets of health service provision to enhance the collection, sharing and storage of health data. Investments are particularly needed to address fragmented data systems and to improve standardisation. Many countries also require additional support to fully adopt and optimise electronic medical records and health information systems, including strengthening data governance.

3 Building digital capacity and literacy - Digital transformation is pegged on the availability of trained IT specialists as well as digitally literate health workers and service users. Investments are therefore needed to promote digital education in primary to tertiary education as well as to continually develop the technical skills of the health workforce and government staff.

¹⁰ [Global Digital Health Index](#). Accessed 28 November 2022.

Costing the digital transformation of health systems in Africa

Health planners in Africa generally lack reliable information on the short and long term costs of digitally transforming their health systems. Reliable data on investments in digital health in the Africa region are not publicly available and models that estimate the cost of digital solutions are often based on short-term programmes or extrapolated from pilot and research environments, which may not accurately represent real-world data or be replicable to different contexts in the region. This lack of solid evidence on digital health investment issues also deters investors or donors from intervening in the region.

We estimate that an investment of US\$4.1 billion is needed to support the digital transformation of health systems in low- and lower-middle-income countries in Africa¹¹ over the next five years, or approximately US\$820 million per year on average. This figure is based on a medium cost scenario¹² for nine priority investment areas.¹³ The primary driver of this cost is for digital connectivity infrastructure, which accounts for approximately 75% of the total projected investment. However, this only includes health sector costs (health record digitisation, wide and local area networks within facilities and information and communication technology equipment needed at facilities) and not the general investment required to increase digital connectivity or usage among the population, which must also be prioritised.

While approximately 60–70%¹⁴ of this funding need should be able to be covered by domestic sources, the remaining gap would ideally be covered by multilateral donors and development banks, existing global funding mechanisms, private foundations and bilateral donors.

The true investment requirements will ultimately need to be determined country by country and based on costed digital health strategies and investment roadmaps. Investments in digital transformation of health systems will also need to be complemented by wider investment to increase digital connectivity and usage among the population, as well as investments to address the broader enabling environment.

Closing the funding gap - Recommendations for governments and donors

Digital health transformation holds great potential to optimise patient care in Africa, as well as to enhance accountability. More efficient digital health systems will allow governments to ascertain their country's disease burden accurately and deploy appropriate resources. Data generated through digital approaches and application of AI and machine learning can also help countries design and implement a wide range of both targeted and national programmes that could deliver phenomenal health improvements. While increasing investments in digital transformation may not necessarily lower healthcare expenditure in

¹¹ This includes countries within the WHO Africa Region, except for Eritrea and South Sudan since they lack purchasing power parity (PPP) estimates and Botswana, Equatorial Guinea, Namibia, and South Africa due to their income classification.

¹² The low cost scenario estimate is US\$2.4 billion and the high cost scenario estimate is US\$6.7 billion over five years, based on our data sources.

¹³ The nine priority digital health investment areas were selected on the basis of input from more than 350 global stakeholders. We have also identified other areas that will require greater investment to ensure that the enabling environment will facilitate the digital transformation in an equitable, inclusive and sustainable manner. For a full methodology for the cost and impact modelling, see *Closing the digital divide: More and better funding for the digital transformation of health* (<https://transformhealthcoalition.org/wp-content/uploads/2022/10/Closing-the-digital-divide-mainReport.pdf>).

¹⁴ This is an illustrative estimate based on the proportion of domestic spending to international aid spending in low- and lower-middle income countries health spending from WHO Global Health Expenditure database, and domestic investment proportions from the Global Fund 7th Replenishment projection of available resources.

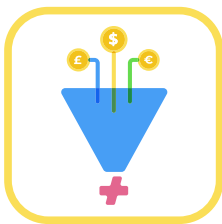
the short term due to the resource requirements of building and maintaining digital infrastructure and systems, it will certainly reduce unit costs for specific services, improve efficiencies and consequently improve health outcomes.

Closing the digital divide calls on national governments, donors and development partners, and the private sector to increase and better coordinate investment in the equitable, inclusive and sustainable digital transformation of health systems in low- and lower-middle-income countries, by prioritising the following areas.



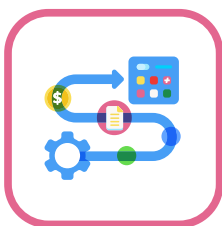
Recommendation 1: Increase investment in digital transformation of health

Governments and international donors should prioritise funding to support low- and lower-middle-income countries in the region to digitally transform their health systems, ensuring investments are sustainable and support equity, inclusion and human rights. Investments should prioritise the gaps noted in this policy brief, namely digital infrastructure, interoperability and building the digital capacity of health workers and government staff.



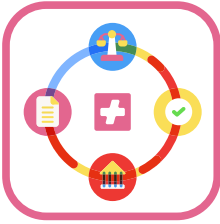
Recommendation 2: Improve coordination and alignment of digital health investments

Donors should ensure that their investments are coordinated and aligned with national priorities and digital health strategies with measures put in place to ensure the sustainability of externally-funded programmes. Donor coordination groups and public-private partnerships are among the mechanisms that must be strengthened to reduce the proliferation of fragmented digital health projects, duplication of resources and data silos. Greater coordination between African countries will create opportunities to replicate digital transformation success stories from the region and learn lessons from other countries' experiences.



Recommendation 3: Develop costed digital health strategies and investment roadmaps

Governments should develop (or update) costed strategies plans and investment roadmaps for the digital transformation of health, including building digital health literacy and skills, as an integral component of their UHC and health system strengthening agenda. Sustainable investments in the region will only be achieved when different actors know, based on efficient data, the true costs of digital transformation. This includes raising awareness about the importance of ongoing operating costs such as human resource training, replacing capital equipment and routine maintenance. The development of cost-benefit and timely impact evaluations of digital health initiatives will help to strengthen evidence-based policy making and investments.



Recommendation 4: Strengthen policy and regulatory environments

National governments must strengthen their legislative and regulatory frameworks and develop the necessary policies to guide the inclusive, equitable and sustainable digital transformation of their health system. Such frameworks should include developing minimum standards for digital health systems and health data governance and mechanisms for enforcing their adherence. Countries should also develop interoperability and integration standards to enable secure and seamless data sharing. All policy processes must be inclusive of all relevant stakeholder groups and prioritise issues such as health data governance. A transparent public policy environment and robust regulation increases planning and investment certainty for international donors and the private sector and clarifies the incentives and expectations.



Recommendation 5: Create mechanisms for meaningful multi stakeholder engagement

Involving stakeholders from multiple sectors and backgrounds in the development, implementation and monitoring of digital transformation strategies will help to ensure they reflect the needs of different communities. The participation of groups such as young people, women, older persons, persons with disabilities and marginalised and hard-to-reach communities should be supported financially to ensure that people across all strata of society are represented and can hold decision-makers and service providers accountable.



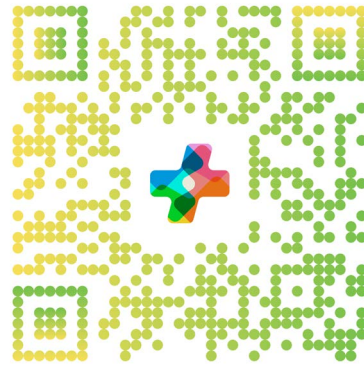
Recommendation 6: Bridge the digital divide

The impact of digitalisation, even in countries where this is more advanced, will be limited without a focus on equity. Equity must be the fundamental principle around which any digital health strategy or investment roadmap is structured, giving priority to those populations who are furthest from UHC. Governments and donors should prioritise strategic, targeted and coordinated actions to close existing divides in digital access, which is a prerequisite for equitable access to digitally-enabled health services. Priority should be given towards improving power and connectivity infrastructure across health facilities and in rural communities.

Acknowledgements

This policy brief is based on Transform Health's report *Closing the digital divide: More and better funding for the digital transformation of health*, which was developed under the guidance of Transform Health's Resource and Investment Circle and a Global Research Consortium that was established to contribute to the development of the report. The cost and impact modelling in the report, as well as in this policy brief, was led by PATH/Digital Square.

Read the full report, *Closing the digital divide: More and better funding for the digital transformation of health*, and learn more about Transform Health's work on digital health investment.



bit.ly/digital-health-funding

About Transform Health

Transform Health is a global coalition of organisations, individuals and institutions committed to achieving universal health coverage through the use of digital technologies and data. To learn more about Transform Health visit www.transformhealthcoalition.org.

