

Perspective

As digital technologies develop at lightning speed, it becomes possible to imagine new kinds of health and education services in Africa.

In this vision, health workers use intelligently gathered data to pinpoint the most vulnerable people and deliver personalised preventative care and treatment. Teachers can track whether and how students are learning. This smart system is cost effective, efficient and inclusive.

In this narrative, technology can help us to reimagine health and education as key drivers of human capital, creating the healthy, tech-savvy workforce for the jobs of tomorrow. But can this vision really become a reality?

It is well known that sub-Saharan Africa lags well behind on its health and education investments, as evidenced in the World Bank's Human Capital Index. The result is that, despite making progress – in reducing deaths of children under five, for example – improvements are still far too slow. Africa still accounts for more than half the global deaths of children under five. Similarly, one in every 183 African mothers die in pregnancy or childbirth, compared to one in 10,000 in OECD countries.

Bridging these gaps – and the wide inequalities within African countries – is critical if we are to achieve the United Nations Sustainable Development Goals (SDGs). It is also a key focus of the African Union's Agenda 2063 that aims to transform Africa into "the powerhouse of the future".

*Digital technologies can play a vital role in helping Africa to improve its education and health services, but only if policymakers pay far greater attention to the systems necessary for delivering them, argues **Benno Ndulu***



Harnessing digital technology for health and education



mission explores the potential for the use of technology to cause positive disruption in health and education. It concludes that policymakers are too easily dazzled by the allure of costly technological fixes when they would do better to look at the entire delivery systems needed to support them.

A case in point is the GeneXpert rapid testing tool for tuberculosis rolled out over the past decade in a number of countries, notably South Africa. It is a clever innovation, but it will not have the desired impact on TB infection rates unless patients follow up to get the required medications and take them as instructed. This requires well-trained health workers and a good supply of drugs.

That is not to say there are not some real beacons of hope. In Uganda a web-based application called Mobile Vital Records System has helped increase birth registration rates from 28% to 70% at a cost of three cents per registration. This helps health workers to better track the health of infants and improve the services they provide through their lifetimes.

And in Mali, a proactive community case management programme initiated by an organisation called Muso uses a digital dashboard to seek out vulnerable children who are likely to require care. The use of the dashboard has led to a 10% increase in the number of houses visited per month and a rapid decrease in child deaths.

At their best, new digital tools can make intensive and thoughtful use of data and feedback loops – to learn what's working, to better understand users' specific needs, and tailor services to reach those who are left behind.

Whole-systems approach

To transition to this data-intensive system of service delivery, however, will require a higher degree of digital readiness across the whole spectrum – from service providers to users as well as those who govern these systems.

Users will need to have access to the right kinds of devices that are the platform for interaction and the digital skills needed to operate them. Service providers need to look again at their business models to make sure they cater for those on lower incomes.

Given the number of privacy scandals that have unfolded across the world, it is also vital that we quickly get in place robust but sensitive regulation to govern the use of people's personal data.

It is estimated that the costs of achieving the SDGs and AU Agenda 2063 targets in Africa will be between \$600bn and \$1.3 trillion a year. What these estimates are missing is the savings that can be created in our health and education systems through the judicious scaling up of digital and AI technologies. The onus then is on scaling up – but doing it thoughtfully, taking a whole-systems approach so we get the best from what technology can offer. If everyone plays their part – government, the private sector, then the vision of smart, human-centered services could soon become a reality. ■

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But turning around our struggling public health and education systems will take much more than just throwing money at the problem. Studies show that countries can spend wildly varying amounts on health care and yet achieve the same results. Child mortality rates in Madagascar and South Africa are about the same, although health expenditure per capita in South Africa is 19 times higher than in Madagascar.

Much hope – and money – is being invested in the promise of digital technologies. The continent is replete with launches and pilots of impressive sounding startups that promise to transform schooling and healthcare. The trouble is, few of them have actually proven they can deliver impact at scale.

Costly fixes

A new report from the Pathways for Prosperity Com-

Above: The GeneXpert testing tool has the power to reduce TB infection rates – but it must be backed up by an adequate support system.