# The Evolution of Healthcare: Unleashing innovation in Africa

With the support of AWS, Exclusive Technology Partner at Africa Health

Omnia Health
By Informa Markets

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Together for a healthier world

# Introduction

More than 8.4 million COVID-19 cases and 217,000 deaths have been recorded across Africa since confirmation of the first case in February 2020. Vaccines offer hope, yet 10 months after the first was approved for medical use, the continent's yawning disparities are all too evident as countries continue to struggle to vaccinate their populations.

Many African nations are furthermore unlikely to return to pre-crisis growth levels before 2025, according to Kiel Institute projections.

Yet with crisis comes opportunity.

In 2020 we unveiled in our last Africa Health report how the pandemic had accelerated telemedicine's adoption across the African continent, while big data was also seen by industry leaders as a major opportunity to make much-needed healthcare system changes.

In more recent months, 'digitalisation' was identified as a major technological investment priority by African healthcare organisations responding through our survey, who identified it to a greater extent than their counterparts worldwide. Similarly, value-based healthcare was seen as the biggest emerging trend by African healthcare organisations through the same survey, relative to other regions worldwide.

In this report, we share perspectives from healthcare leaders speaking at Africa Health 2021, an online event brought by Informa Markets on 25-29 October 2021, on lessons learned from the pandemic in Africa and how the industry should be reshaped.

Their insights revealed a particular emphasis on bringing stakeholders together, and enabling innovation to flourish on the continent through leveraging data, implementing policies, and harnessing the private sector, among other measures.

The report was produced in association with Amazon Web Services (AWS), a subsidiary of Amazon offering reliable, scalable and inexpensive cloud computing services.

## AWS: a trusted partner in healthcare

Healthcare and life science organizations are reinventing how they collaborate, make data driven clinical and operational decisions, enable precision medicine, and decrease the cost of care as their embark upon their modernisation journey.

Our vision at AWS is to be the trusted technology and innovation partner to the global healthcare and life sciences industry, providing unmatched reliability, security and data privacy of services and infrastructure in the cloud.

## AWS for Health

This year at Africa Health we introduced "AWS for Health", an offering of 16 healthcare purpose-built AWS services and AWS Partner Network solutions used by thousands of healthcare and life sciences customers globally.

AWS for Health provides proven and easily accessible capabilities that help organisations increase the pace of innovation, unlock the potential of health data, and develop more personalised approaches to therapeutic development and care.

More details can be found here: https://aws.amazon.com/health/.

# Contents

# Health equity challenges and opportunities in Africa

## Vaccine crisis underlines need for stronger political will, solidarity, and cooperation

WHO Africa data shows that the African continent will fall almost 500 million doses short of its global year-end target of fully vaccinating 40 per cent of its population.

According to **Dr. Joel M Mubiligi**, Executive Director, Partners in Health, to date only 15 countries across Africa have achieved their goal of vaccinating 10 per cent of their population, already a "low, ambitious goal". He was speaking during the session *Vaccination challenges and opportunities during and post-pandemic.*

Africa's vaccination challenges were attributed by Africa Health speakers to issues such as "conflict zones" complicating delivery of services, and vaccine hesitancy. Corruption was seen as a significant problem that had affected PPE supplies, and developed countries came under criticism for "hoarding" vaccines.

"It's difficult to look at the world as one entity," **Dr. Ahmed Ogwell**, Deputy Director, Africa CDC, acknowledged. "We need to do things in a bold way here in Africa to break through the clutches of the pandemic."

**Professor Morgan Chetty**, Chairman of the IPA Foundation of SA and Chairman of KwaZulu Natal Doctors Healthcare Coalition went further. "It is morally wrong for rich nations to hoard COVID-19 vaccines," he said during his talk on *Vaccine Equity & Vaccine Nationalism.*

Vaccine nationalism has resulted in low-income countries having to endure a long wait for allocations, as late as 2023 or 2024 potentially, Prof Chetty said, who called for improved global efforts.

"Wealthy countries put money into contracts, and proceeded with bilateral negotiations, prepaying before vaccines were even manufactured or better clinical trials were finished. When the vaccines were released under Emergency Use Authorisation, these countries had received millions of doses," Prof Chetty said.
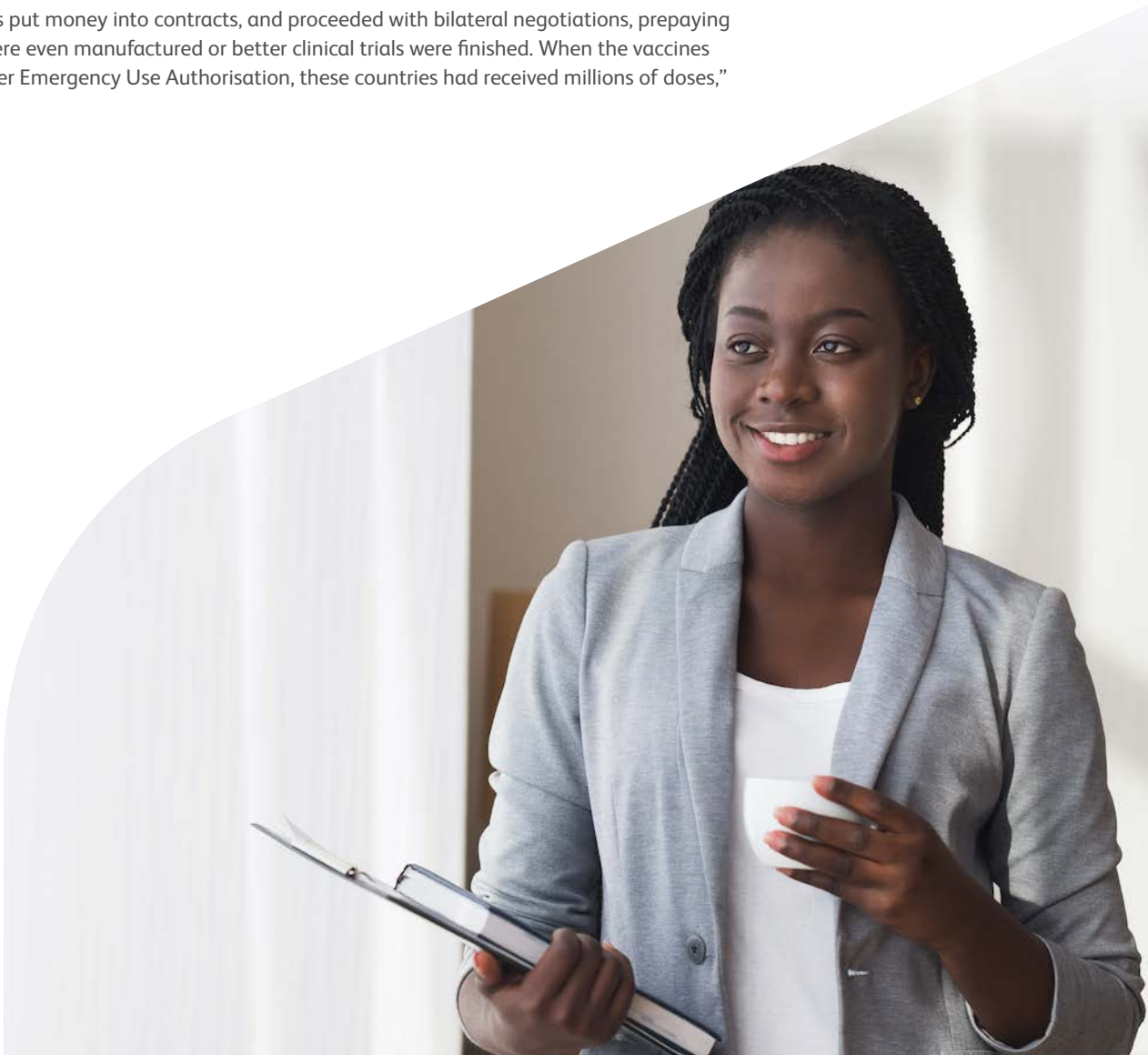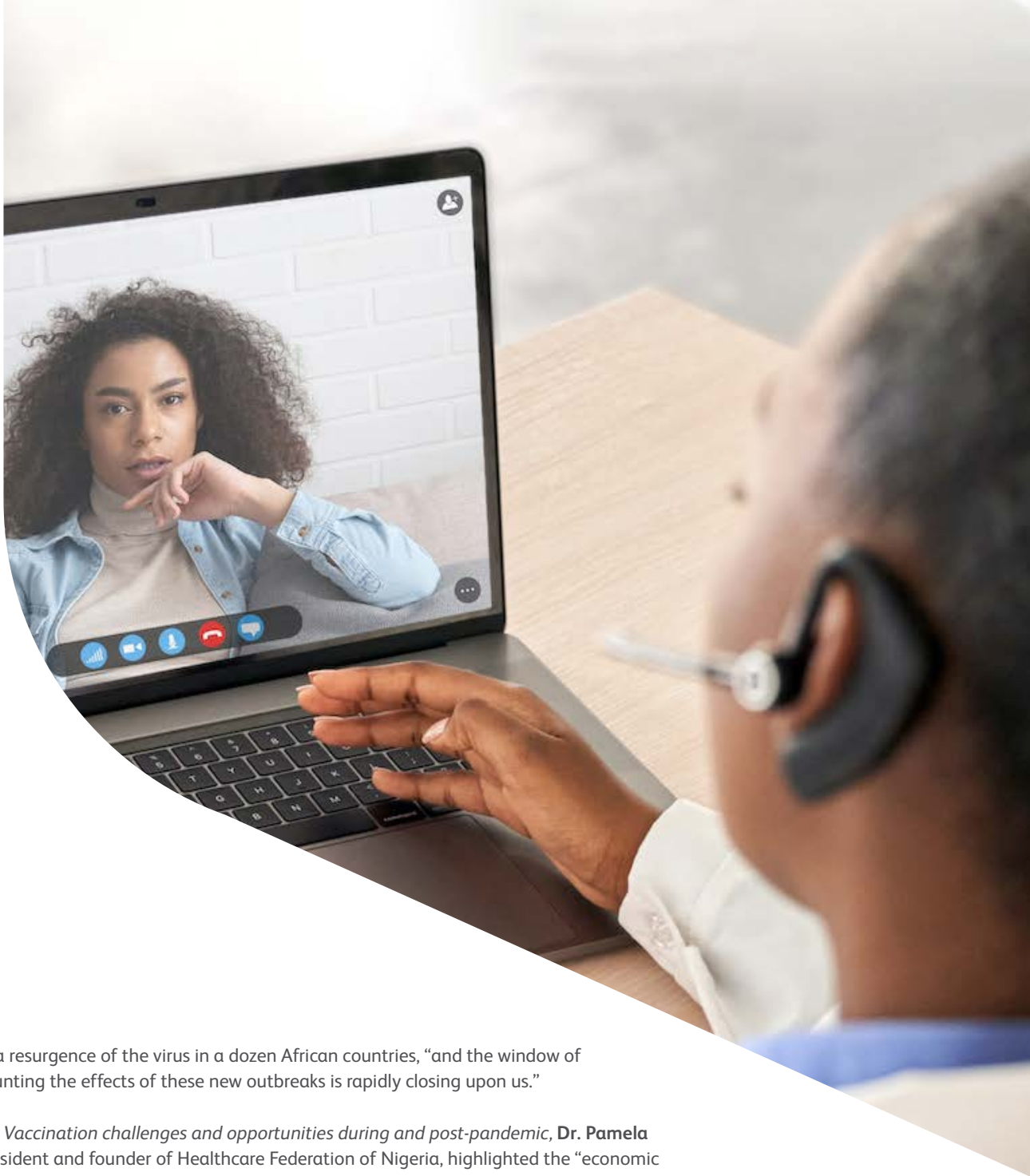
There is currently a resurgence of the virus in a dozen African countries, "and the window of opportunity for blunting the effects of these new outbreaks is rapidly closing upon us."

During the *session Vaccination challenges and opportunities during and post-pandemic,* **Dr. Pamela Jackson-Ajayi**, President and founder of Healthcare Federation of Nigeria, highlighted the "economic factor" of intellectual property and how this is at odds with access to essential vaccines as a human right.

The issue of how patents are developed, and how the patents system "disproportionately" benefits the holders of patent rights in developed countries, presents the need to work together. Nations and continents such as Africa are at risk otherwise from 'profiteering'.

"We really need technology transfer," she continued. "But we need all stakeholders to come to the table." The African Continental Free Trade Area (AfCFTA) under development by the African Union may help realise this, she added.

**Dr. Bartholomew Akanmori**, Lead - Vaccine Research, Regulation, and Safety, African Vaccine Regulatory Forum (AVAREF), agreed. "We need to coordinate efforts of technology transfer hubs. Let it play to our advantage. The African Union must take the lead."

Yet while vaccine equity is universally seen as an issue, **Dr. Egbe Osifo-Dawodu**, founding partner, Anadach Consulting Group, highlighted how - problematically - it isn't clearly defined.

Speaking during the session *Healthcare innovation post-pandemic*, Osifo-Dawodu said "When we talk about vaccine equity, what does that mean? Not everyone is equally at risk. So, in my view, why should we have equal access to the vaccine? And there are different ways to think about this, and not only on medical terms."

## Africa must develop own vaccines

Several Africa Health speakers held the view that African countries must begin manufacturing their own vaccines.

**Dr. Boitumelo Semete-Makokotlela**, CEO at South African Health Products Regulatory Authority highlighted during *Building a resilient healthcare system in Africa* how the key takeaway from Africa's vaccinations crisis "was the need for Africa to build its own manufacturing capacity," adding that the entire ecosystem needed looking at.

She pointed to the large number of diagnostic tests imported into Africa, and how these have recently been manufactured locally. "We've seen innovators in countries like Senegal and South Africa innovate and develop some of these tests. So, we really need to think of it holistically across the entire value chain."

In the short term, there should be a focus on vaccine acquisition to manage the present crisis, **Professor Morgan Chetty**, Chairman of the IPA Foundation of SA and Chairman of KwaZulu Natal Doctors Healthcare Coalition, suggested. But long term plans requiring vaccines to be manufactured in Africa will potentially mitigate both costs and vaccine availability.

During the session *Vaccination challenges and opportunities during and post-pandemic*, **Dr. Geofrey Makenga**, vaccinologist and epidemiologist from the National Institute for Medical Research in Tanzania, agreed, saying that vaccines had arrived in Africa 10 to 20 years after being first introduced to western countries. "The current pandemic just highlighted the existing gap." The only way to close the deficit was for Africa to manufacture its own.

Africa's governments – the most important stakeholder in his view - must demonstrate the political will to enable this, he continued, and commit to a common market, while the banking system may also play its part in investing in vaccine creation as "vaccine production is a cumbersome pathway."

"Getting vaccines to the continent is not only expensive; it's time-consuming," said **Dr. Ahmed Ogwell**, Deputy Director, Africa CDC. "We have committed to support our member states." The African Union is systematically working on having vaccine makers produce in Africa. "We don't want them produced elsewhere, where a politician decides they are not needed in Africa. Production needs to be here."

**Dr. Ogwell** added that Africa must ultimately make its own products "from scratch", based on its own priorities, deriving from research. This means building its own institutions and human resources capacities, incentivisation, and securing its market.

According to **Dr. Bartholomew Akanmori**, Lead - Vaccine Research, Regulation, and Safety, African Vaccine Regulatory Forum (AVAREF), "Capacity has to be built and sustained. Governments must recognise that, to manufacture vaccines in Africa, regulatory authorities must be well resourced."

## Africa must address social equity

Speaking during the session *Building a resilient healthcare system in Africa*, **Professor Glenda E. Gray**, President and CEO, South African Medical Research Council, stressed the importance of the private sector recognising social equity values and compassion. She said that the private sector must learn to support rural areas and the poor, stressing that no one is turned away by the public sector.
At the same time, the same quality of service and efficiency seen in the private sector should also occur in the public sector.

"Equity is key, and the pandemic has exposed many of the disparities in our society," said **Jens Dommel**, Head of Healthcare for Europe, Middle East and Africa at Amazon Web Services (AWS). He described a global three-year programme launched by AWS through which US$ 40 million is invested to support customers and partner-building services to create health equity worldwide. Particularly affected by the pandemic were women. "With fewer tools to protect our health workers, and more women in the frontline, of course our women suffered more than men," said **Dr. Agnes Binagwaho**, Vice Chancellor, University of Global Health Equity (UGHE) in Kigali.

She added that inequities in access to education, leadership and employment were all linked to cultural perspectives still viewing women as secondary players in society and stressed that gender equity should be on the agenda for humanity.

"It's a call for all people of good soul and good will to continue to fight for gender equity. It's bigger than fighting for gender equality; sometimes it's not even 50/50, sometimes it's 60 for girls because they start so far," she said during a session on how COVID-19 has affected women, *Women at the front lines - key to healthcare sector recovery & tackling social disparities*.

# Case Study: Discovery Group Boosts Global Growth with AWS

Financial services and life insurance company Discovery Group isn't just about selling insurance policies. It wants to improve the health of the people it serves too. Through its Vitality shared-value platform—which covers physical, mental, financial, and environmental wellness—it aims to motivate 100 million people worldwide to become 20 percent more active by 2025.

To reach those numbers and new markets, it needed a flexible and cost-effective technology infrastructure so its insurance partners could offer the Vitality program and products to their own customers. When its existing on-premises infrastructure proved too expensive and cumbersome, Discovery Group turned to Amazon Web Services (AWS).

Vitality Group is part of South Africa's Discovery Group and is responsible for growing the Vitality shared-value platform outside of South Africa and the UK. Initially, the Vitality program tracked personal habits and behaviors such as physical activity and nutrition over the course of a person's life, with the goal of encouraging and rewarding healthy choices.

This has now expanded to include financial, mental, and environmental health and well-being too. Discovery Group has made it a strategic priority to increase group revenue by growing the Vitality program globally and expanding it into other markets, such as banking and personal and commercial insurance.

## International Expansion and Improving Health

To meet its goals, Vitality Group needed to help insurance partners easily deploy the Vitality program and offer it in local markets, typically through co-branding or white labeling. The answer was the Vitality One technology platform.

"Vitality One is the core IT asset of the Vitality Group business," says Hushan Padayachee, chief information officer at Vitality Group. "It is also the core platform for our international businesses going forward. It's going to be the underlying platform that we build all future international products on as we go global."

The business faced a choice when it conceived of Vitality One in 2015: build the platform on its existing on-premises infrastructure or build it in the cloud. But the on-premises route would have meant high upfront infrastructure setup costs and less flexibility. For example, it would have meant having data centers in every territory to support partners' local data sovereignty requirements. This would have been costly and would have meant slower rollout to new markets.

"Our legacy systems were not necessarily designed from first principles for those kind of requirements," Padayachee says. "They just evolved over time and new requirements had to be hammered into those on-premises solutions. It's perfectly functional but requires a lot of effort to maintain. We had multiple on-premises customer data center deployments and that pattern was no longer sustainable for us from a cost perspective."

## From On-Premises to AWS

The alternative was to build Vitality One in the cloud. This would eliminate infrastructure setup costs and provide easily scalable compute and database services on demand. It would also shift spending from capital expenditures to operational expenditures. Discovery Group already used AWS for some workloads and Vitality Group chose to tap into that trusted relationship.

"The core purpose of moving to AWS was around reducing cost, being more agile, and being closer to customers that potentially didn't want to host Vitality One in an on-premises data center," Padayachee says.

Launched in August 2018, Vitality One runs on a microservices application architecture built on AWS. The underlying infrastructure hosts and runs the multi-tenancy deployment for each insurance partner's version of Vitality One. This can be done in the partner's geographic region of choice to meet local data sovereignty requirements. Vitality Group has also started to move to native Amazon services Vitality Oneas part of its wider modernization effort.

> "The core purpose of moving to AWS was around reducing cost, being more agile, and being closer to customers that potentially didn't want to host Vitality One in an on-premises data center."
>
> **Hushan Padayachee,** chief information officer at Vitality Group.

These services provide the high availability and scalability that Vitality Group needs to manage unpredictable customer usage in different markets. This would have been more difficult and costly on-premises. And moving from capital expenditures to operational expenditures makes it cost effective to roll out the platform into new territories—there's no need for huge upfront infrastructure investments.

Vitality Group now has multiple instances of the Vitality One platform hosted on AWS globally. AWS Partner Accenture helped with the initial Vitality One application development and supports global expansion and go-to-market efforts. Another AWS Partner, Synthesis, helped to build, support, and maintain the platform and has assisted Vitality Group with an AWS Well-Architected Review and modernization efforts.

## A Technology Platform for Future Growth

As of June 2020, Discovery Group had spent R910 million ($61.2 million) to develop Vitality One, and was already seeing results: 11 markets-including Austria, Canada, Ecuador, Japan, Korea, the Netherlands, and Pakistan-had gone live on the platform, serving more than 1.5 million of the 20 million-plus Vitality members globally.

By building Vitality One on AWS, Vitality Group is reaping the benefits of reduced setup and running costs, along with high availability and scalability. It also has a platform that can support international expansion and revenue growth.

Using the platform, Discovery Group aims to deliver the Vitality program internationally across multiple business lines; nine new markets and three US-driven initiatives are set to go live by mid-2022. Meanwhile, existing markets are gradually migrating to Vitality One to enhance their own product propositions and client experience.

"Vitality Group is the spearhead of Discovery Group's global ambitions and the really big growth will come from the Vitality One solution being implemented across the board," Padayachee says.

# Strengthening African health systems through data

## Digital healthcare can mitigate health system weaknesses

During her talk *Digitising healthcare and its challenges* on the third day of Africa Health 2021, **Tolagbe Martins**, Head of Public Sector Growth at Helium Health, said that the timely implementation of digital healthcare in Africa was a matter of survival for the continent.

"African healthcare is under significant pressure: there is brain drain, there is the effect of the pandemic, and there are justice and security issues across the continent that are making it unattractive - so another way to mitigate these is by technology," she explained.

"We need digital healthcare to save lives, whether by minimising error or by being able to make better decisions, or by reducing costs," she said, explaining that digital healthcare allows for more efficient data aggregation and management of information.

Similarly, during the session *Building a resilient healthcare system in Africa*, **Professor Glenda E. Gray**, President and CEO, South African Medical Research Council, emphasised the importance of having a data-driven approach to identify issues in the health system and how to plan for the future. "Data is king," she said. "Without data we can't do anything."

"We need a health system that is resilient, equitable, data driven and driving quality," she continued.

**Jean Pierre Horne**, Head of Healthcare AWS in South Africa, also highlighted the power of data in informing better healthcare decisions.

During his talk *Transforming public healthcare in the cloud* on day four of Africa Health, he said how AWS-enabled smart health solutions can help lower the cost of providing quality healthcare services to citizens by leveraging data that provides insights to providers and patients and predicting healthcare events before they occur.

According to Horne, AWS has seen governments worldwide continue to improve healthcare for citizens as they use the cloud to advance clinical care. Research centers such as the South Africa Medical Research Council are able to use cloud for data analytics, AI/ML for healthcare data modelling, and health data sharing capabilities using AWS Open Data platform and AWS Service workbench.

**Spencer Horne**, founder of logistics startup Cloudline in South Africa, meanwhile stressed that technology can be transformative in healthcare, but the extent of this is subject to how innovation is enabled on the African continent.

The pandemic has revealed fundamental technology constraints in healthcare systems - gaps that may be filled through entrepreneurs who can go beyond conventional approaches to solve a problem as quickly and as efficiently as possible.

"What we call leapfrogging in Africa," Horne said. An example he shared of the potential pathway for the African continent to follow was the mobile "revolution" in Africa and subsequent money mobile revolution built on top.

## Africa must develop better health policies and regulations addressing data, security and interoperability

During a panel discussion on *Telemedicine opportunities and challenges in Africa: policy and regulatory perspective*, **Robin Njiru**, Business Lead (West, East & Central Africa), at AWS in Kenya, described AWS' approach of working with local bodies and partners to ensure that that laws around data protection and virtual consultations protect patients and practitioners alike.

AWS has found governments and ministries of health receptive to a collaborative approach so that regulation does not stifle innovation, he added.

**Dr. Olajide Adebola**, Chief Technology Officer / Partner at Nigeria-based telemedicine/ehealth business Home Plus Medicare Services, shared updates on how Nigeria's approach to health data protection.

The Nigeria Data Protection Regulation (2019), while "a step in the right direction", was not sufficiently detailed as regards the delivery of health services. He described that it did not require for instance how long data storage should be held.

Data protection "starts with ethics, talking about the rights of the patients, and doing good without harm," he elaborated further. Acknowledging the presence of "foreign" digital health tools in Nigeria, he called for health data corresponding to any territory to be stored on servers domestically, rather than abroad. This will prevent data theft.
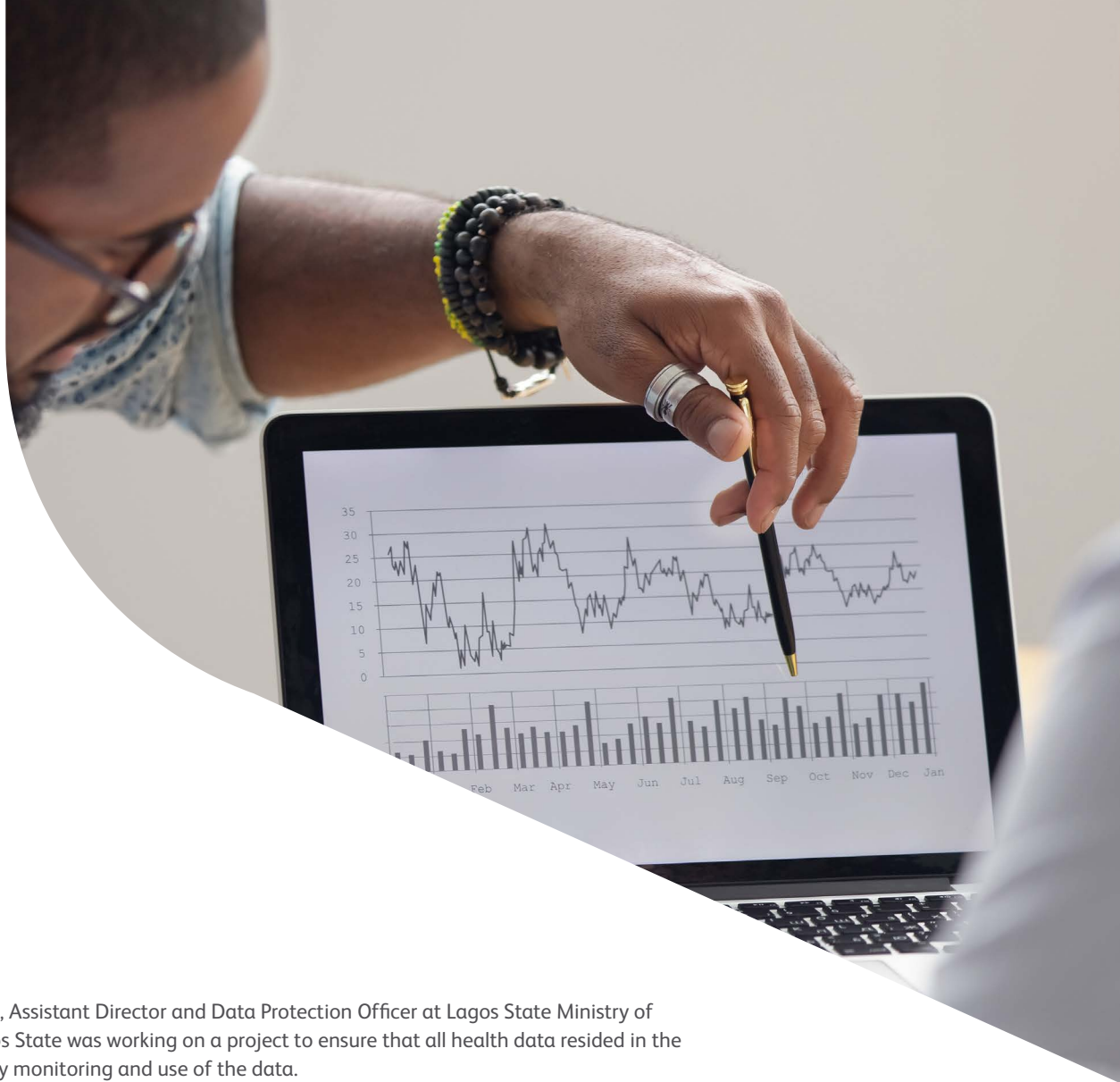
**Dr. Raphael Akangbe**, Assistant Director and Data Protection Officer at Lagos State Ministry of Health, said that Lagos State was working on a project to ensure that all health data resided in the state, allowing for easy monitoring and use of the data.

Njiru from AWS added a point that, during the transit of data in AWS cloud, every single action is tracked through what is called a "cloud trail", and this eliminates questions over where the data was, and who was handling it and when.

Regarding interoperability, **Dr. Adebola** said that the health sector in Nigeria is following the National Health ICT Framework 2015-2020, to be updated to 2021-2025 documents, which will promote, design, develop, and maintain the national health information exchange (HIE) using open data architecture and open data standards. This will allow for interoperability. He added that low technical capacity has been a challenge, as well as funding.

Aside from regulatory certifications, Nigeria has adopted HL7 FHIR (Fast Healthcare Interoperability Resources) as a data exchange standard.

eHealth architecture is furthermore in one of the ISO/TC 215 health informatics standards, he said, allowing for population-related data to be mined on a national level, while clinicians may research for medical education as well as for administrative purposes. "Nitty gritty" data from electronic health records can also be mined at the point of care.

Aside from Nigeria, two other countries in Africa are participating in ISO/TC 215 informatics standards: Algeria and South Africa.

Providing a Nigeria public sector perspective on regulations impacting telehealth, **Dr. Akangbe** commented that while no specific laws regulating telemedicine activities exist in Nigeria, there were nonetheless laws that "intersected".

Lagos State Ministry of Health furthermore leads in compliance with national data protection regulations in Nigeria and is also presently working on a project addressing how digital health will be effective within the state, **Dr. Akangbe** added.

# Role of stakeholders in strengthening African healthcare systems

## Governments must involve all sectors - private especially

During the talk *Healthcare innovation post-pandemic*, **Egbe Osifo-Dawodu**, founding partner, Anadach Consulting Group, said that it was critical for government ministers to prepare the African continent for another pandemic.

"When you have a pandemic, it's not a health issue alone," she said, adding that all of government should be handling it, as opposed to the health ministry alone. Countries responding to it best, for example Morocco, approached the crisis early and strategically.

However, government alone has its limitations, as was seen in the pandemic, with the private sector playing an invaluable part, according to speakers.

Osifo-Dawodu highlighted the need for health ministers to strategically involve all available resources in all sectors - public, private and NGO - for dealing with an issue of the pandemic's magnitude. In Europe, for example, strong public sector systems were quick in bringing in private sector capability. In Africa, conversely, some governments said they did not have PCR testing ability despite the readiness of the private sector.

African governments must also consider more innovative financing, she continued, by looking at the continent's "world class" fintech example and evaluating how to apply this in the healthcare space where there are many small financial transactions.

The African diaspora is an added opportunity, typically transferring funds to families for education and sickness during normal times in many African countries. Innovative ways must be identified by governments to tap into these financial flows, Osifo-Dawodu suggested.

She also identified religious groups and regional foundations active in Africa with a focus on health that governments should look at - including "biggest donor" The Bill & Melinda Gates Foundation.

Africa's universities also have a part to play in that they could potentially produce talented leaders with the right mindset to drive innovation in areas such as biotechnology. Few countries on the African continent currently have such universities, according to Osifo-Dawodu.

**Dr. Olujimi Coker**, CEO, Lagoon Hospitals in Nigeria, during the session *Building a resilient healthcare system in Africa* said that the private sector often has the business knowledge and discipline and capability to properly execute projects, while the public sector owns the process, licenses and pathways in which businesses can function.
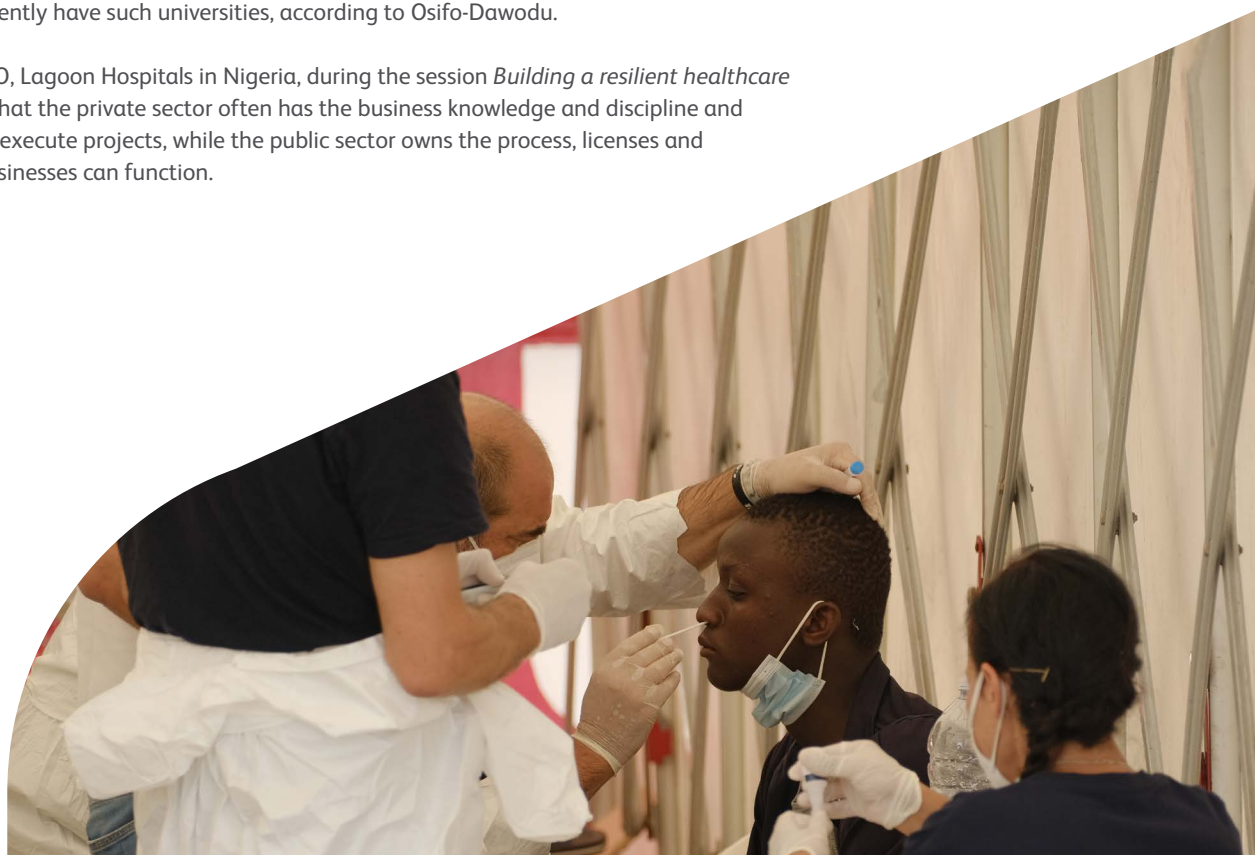
"Harnessing the two strengths are important. We have the ability and knowledge, while the government has the capacity," he said. He nonetheless cautioned "during the pandemic, there was a shared goal. The challenge is how we continue after the pandemic, where things digress, and people go back to their silos."

He added that while the Lagos private health sector is "extremely competitive", at the beginning of the pandemic CEOs of the major healthcare providers got together and created a WhatsApp group in the spirit of collaboration. The group was joined by key government officials.

Speaking during the same session, **Professor Glenda E. Gray**, President and CEO, South African Medical Research Council said that, prior to Covid, there was hostility between public and private sectors in South Africa. The pandemic showed how the two could work together in the future - for example, the private sector enabled the scaleup and distribution of oxygen supply in the country.

"The lesson we've learned is that we need to work together," she said. "We cannot have this kind of divide between the public and private sector in our country anymore. We all have to work together to deliver the logistics, and the infrastructure and accountability of the private sector is critical to a future health system in our country."

According to **Jean Pierre Horne**, Head of Healthcare AWS in South Africa, the private sector has a fundamental part to play.

"We can't expect governments to carry this full burden," he said. "We will fall short. The private sector has a critical enabling role. It's in a unique situation with access to financing, resourcing, and skills, and bringing those to bear in partnership with government will address some of the challenges we've experienced."

He added that governments should be more welcoming or accessible towards enabling partnerships with private enterprises. This will improve their reach and scale to effectively deal with challenges today.

**Dr. Boitumelo Semete-Makokotlela**, CEO at South African Health Products Regulatory Authority said that governments were not the most flexible stakeholder, but when working with the private sector flexibility is a must. Any public private partnership must have a shared goal and a clear governance framework for it to work.

**Jens Dommel**, Head of Healthcare for Europe, Middle East and Africa at Amazon Web Services (AWS) commented that the quickest and most effective progress could be seen resulting from governments not only open to starting the conversation with tech companies, but willing to solve problems together. "Governments are important because they architect guidelines, which eases up finding solutions and defining security environments," he said.

# Mental health challenges in Africa

While there is an estimated 100 million people in Africa furthermore suffering from clinical depression, including 66 million women, African governments allocate less than 1 percent of their budgets to mental health services.

In his Africa Health talk, **Professor Shekhar Saxena**, Professor of the Practice of Global Mental Health at the Department of Global Health and Population at the Harvard T. H. Chan School of Public Health said that the African continent lacks both psychologists and psychiatrists, which is why there needs to be more attention to mental health as a policy and as investment.

 "In the last 10 years, there has been gradual progress in countries such as South Africa and Ethiopia. Doctors and nurses have been trained in identifying and treating common mental disorders using some of the WHO resources in the public domain," he said.

However, he said that there is "nominal allocation of budgets" when it comes to mental health. He explained that on the African continent, the burden of mental health problems is severe, with a large gap between what is needed and what is being done financially.

During the session *COVID-19 Resiliency at the Frontline,* experts discussed the ways in which healthcare providers at their hospitals dealt with the pandemic. They stressed the importance of providing mental support for workers in the industry.

Ghana-based **Dr. Elom Otchi**, Technical Director at the Africa Institute of Healthcare, Quality, Safety and Accreditation, said that at his hospital an electronic form was developed for all members of staff to fill to determine their level of anxiety. When they exceeded the normal level, a member of the psychologist team would call the staff member.

 "People were very anxious and would like to go to work but they are concerned about how safe they are and also not putting their family at risk," he added.
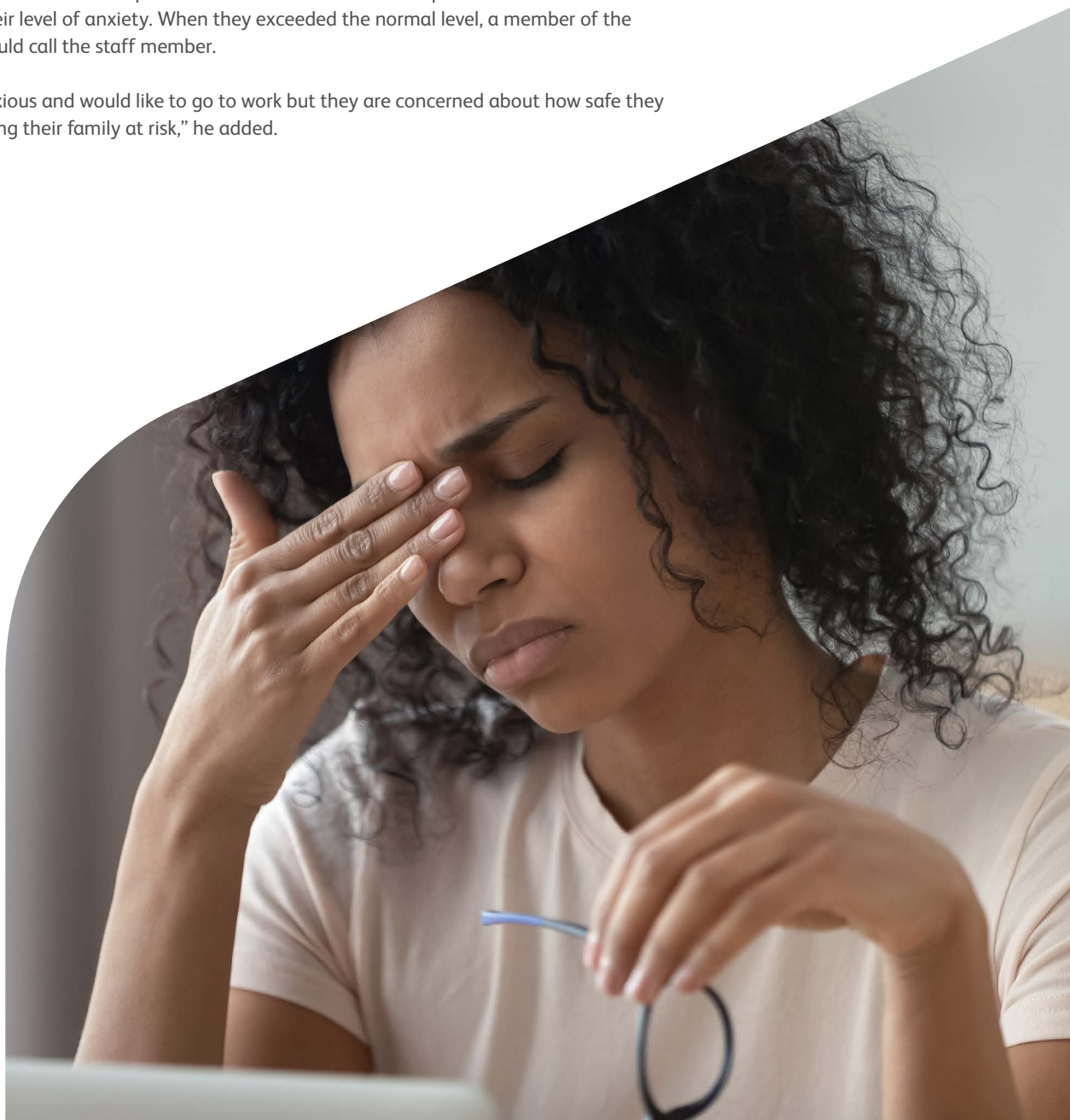
**Dr. Lydia Okutyoi**, Head of Department, Patient Safety and Quality Health Care, Kenyatta National Hospital in Nairobi, Kenya, said that COVID-19 brought a lot of mental health issues starting with the stigma that the staff had to face.

The communities the healthcare provider lived in, refused to interact with them, because they were frightened of the virus. In some cases, some healthcare providers could not make it to work because the buses would not pick them up.

"The staff were seeing less patients, but they were seeing really sick patients so that itself brought the fear factor within them," **Dr Okutyoi** said.

**Ntuthuko Bhengu**, founder of Alchemy Health Technologies in South Africa, cautioned "We expect that mental health will affect employees in a way that we have seen before but is the industry ready to deal with that?"

He added that mental health affects the white-collar employees as much as people from low-income groups, and that the industry must learn from the ongoing pandemic about mental health and be ready for the next one.

# About the report

*The Evolution of Healthcare: Unleashing innovation in Africa* is the latest report in a series looking at the latest trends shaping healthcare, based on opinions voiced by healthcare leaders at Informa Markets' Healthcare events.

Prevalent insights on value-based healthcare were drawn by an expert Informa Markets team from commentary during Africa Health 2021 an online event brought by the organisers of Arab Health, Medlab and FIME.

From 25-29 October 2021, healthcare professionals from across the African continent participated at the event to facilitate the advancement of healthcare in the region. The commentary from their sessions was analysed and distilled to form the key insights shared in this report.

# Previous reports

**2020**
- The Evolution of Healthcare – Africa
- The Evolution of Healthcare – Value-Based Healthcare
- The Evolution of Healthcare – Patient Safety

**2021**
- The Evolution of Healthcare – Healthcare Transformation

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