

The transformative potential of medical technology in emerging markets

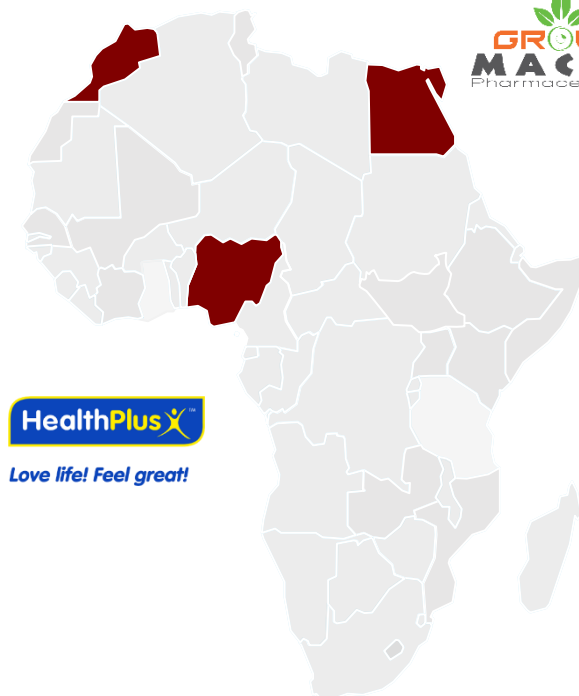
Technological disruption is transforming markets and societies across Africa. Within the span of a few years, technology has taken traditionally capital-intensive sectors such as banking and telecommunications to a capital-light model, dramatically increasing access and affordability. Africa bypassed traditional development, transitioning from limited or no landline infrastructure to mobile phones, and from limited formal retail channels to e-commerce. As of June 2017, 48.76% of Kenya's GDP is transacted through mobile payments.¹

We believe that the next meaningful disruption of traditional healthcare business models across Africa will be led by the impact of medical technology on healthcare facilities and the provision of healthcare services, and we have already seen this start to take hold in other growth markets. The healthcare sector in Africa is poised to bypass traditional brick-and-mortar, capital-intensive and inefficient models of delivering health care to increase access, improve outcomes and efficiency, and drive down costs. The selective and conservative application of enabling technology — including med-tech, telemedicine, precision medicine, next-generation diagnostics, immunotherapy and wearables— will increase access, reduce capital expenditure and lower the cost to the end-consumer.

About Alta Semper

Alta Semper is a dedicated growth markets private equity manager investing flexible and strategic capital in healthcare and consumer opportunities across African growth markets. The firm was founded in 2015 by Ronald Lauder (Chairman of Clinique), Richard Parsons (Chairman of Rockefeller Foundation, former CEO of Time Warner Group, and Chairman of CBS), and Afsane Jetha (former Managing Director of the Africa Private Equity platform at the Duet Group). The founders share a vision to leverage multinational corporation talent, together with their global networks, to create a prime sector-focused investment platform in Africa. Since inception, Alta Semper has invested in the market-medicated cosmetics company in Egypt, (**Macro**

Pharma), the largest pharmacy chain in Nigeria (**HealthPlus**), and the largest group of oncology and radiology clinics in Morocco (**Oncologie et Diagnostic du Maroc – ODM**). This makes Alta Semper the most active investor in the healthcare space in Africa, in terms of deals closed in the last 18 months.



¹ N26 Magazine, <https://mag.n26.com/m-pesa-how-kenya-revolutionized-mobile-payments-56786bc09ef>.

The transformative potential of medical technology in emerging markets

The lack of human healthcare capital can lead to misdiagnosis and inadequate treatment

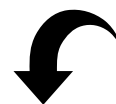
Human resource scarcity in healthcare

The critical shortage of health workers in Africa is among the biggest challenges currently facing healthcare companies and investors. There are very few science graduates, training capacity is insufficient, a large percentage of newly qualified doctors emigrate, and many medical specialists choose not to work for the state because of poor working conditions. Much of Sub-Saharan Africa lacks sufficient pathology lab capacity to accurately diagnose and stage cancers to ensure that appropriate treatments are prescribed. Finding qualified managers for medical or operational roles can be very difficult, given the scarcity of talent and increasing competition. There are only 3 doctors per 10,000 people in Sub-Saharan Africa, less than one-fifth of the global average of 14 doctors for 10,000 people and less than one-tenth of the EU average of 32 doctors per 10,000 people.²

Lack of infrastructure and proper equipment

Most African countries have relatively low historic radiology and imaging equipment spending. Access to advanced imaging like CT scans is limited across Africa to often only one machine in some large cities. Accessing MRI systems can be even more difficult. The cost of technology is often a major barrier to obtaining quality equipment. Quality laboratory testing is crucial to confirm clinical diagnoses, conduct accurate infectious disease surveillance, and inform public health policy. However, current laboratory and healthcare infrastructures are generally insufficient to meet this need.

△ Many African healthcare facilities are acquiring high-tech medical imaging equipment. However, without proper specialized support, this has the potential of increasing the population's radiation.



△ The safe use of these technologies requires the implementation of specialist procedures. The shortage of qualified physicians, nurses and technicians is therefore particularly problematic in facilities that use radiation technology.



△ This may lead to patients receiving non-optimised radiation procedures, resulting in inadequate diagnosis or treatment, or in extreme cases causing potential harm from overexposure to radiation.



2. World Bank <https://data.worldbank.org/indicator/sh.med.phys.zs>

3. Sources: WHO; Statistiques sanitaires mondiales 2014; Société Marocaine de cancérologie; Fondation Lalla Salma

The transformative potential of medical technology in emerging markets

Enabling medical technology has the potential to have significant impact in addressing the lack of quality oncology, radiology and diagnostic resources, both in terms of treatment and preventative care



Capital-light, in-the-community mobile and digital imaging and diagnostics platforms such as artificial intelligence diagnostics software are more accessible, less costly and can improve care delivery. Affordable, scalable and accessible primary and preventative healthcare models such as smart contact lenses can be used in the early detection of vision loss; portable HIV test kits let patients test themselves at home.



Telehealth: Patients in Africa with limited access to healthcare services can use telehealth (video chats, patient support lines) to undergo screenings, consult physicians and receive referrals and follow-up treatment. For patients with congestive heart failure, diabetes, depression and other chronic conditions, telehealth technologies such as home telemonitoring can reduce hospital readmissions and increase the ability of individuals to live independently. Technology is also critical in educating healthcare workers across Africa and training them to use medical devices effectively.



mHealth: Mobile health (mHealth) applies the power and reach of mobile communications to healthcare services. It can help to transform healthcare into a more efficient, patient-centred system in which individuals (and providers) have real-time access to information to support engagement. In Uganda, for example, around 27,000 government health workers use a mobile system called Mtrac to report on medicine stocks across the country.³



Wearables: Many health-related wearable innovations leverage the power of biosensors, which can be placed in a watch, a patch on the skin, implanted under the skin, or swallowed like a pill. In addition to motion, light, pressure, temperature, moisture and gas, biosensors soon may be able to monitor chemicals and biomarkers. For example, doctors may be able to use biosensors to determine how well a drug is metabolized and adjust the dosage and frequency accordingly.



Precision care based on genetic analysis and individuals' health information has the potential to generate new therapies that may radically improve outcomes. Widespread adoption of personalised care could be made possible by investments in offerings that integrate drugs and devices with low-cost diagnostics, disease-management programmes and clinical decision support. Approximately 30%-40% of patients take drugs for which the adverse effects outweigh the benefits.⁴ Targeted therapies, paired with genetic diagnostic tests, help physicians select an optimal treatment the first time, avoiding the costly and risky practice of trial-and-error prescribing. Other innovations in personalized care include specialty drugs, which show potential to improve life expectancy and quality of life. When used with biomarkers to target subpopulations, these drugs could improve outcomes, lower treatment cost, and even prevent disease.

³ Mark Britnell, In Search of the Perfect Health System.

⁴ Deloitte Global Health Care Outlook: Battling Costs While Improving Care

The transformative potential of medical technology in emerging markets

Medical innovations sparked by the need to overcome constraints in other growth markets as examples of how these business models can take hold in Africa and can make a meaningful impact in quality, convenience and cost of care



Medical technology can help shift healthcare delivery to less costly settings and ultimately to patients' homes. *Deccan Hospital in India, for example, uses peritoneal dialysis, a home-based treatment for patients with chronic kidney disease that is substantially cheaper than hospital-based haemodialysis, the more common treatment in the United States.*



The LV Prasad Eye Institute in India has developed technology that allows a single cornea to be sliced and used for more than one transplant patient. Another company has developed an innovative software program that uses enhanced digital images to support and identify diabetic retinopathy and has partnered with the governments of Mexico and Saudi Arabia to roll out its AI platform.



A medical device firm has created easily replicable sets of mobile equipment (as opposed to ones custom-built for individual hospitals), powered by solar batteries, to operate in rural parts of Sub-Saharan Africa.



Some companies have developed audio and video curriculum that explains how to care for patients during the days following surgery, extending the reach of medical expertise to underserved areas in rural and urban African communities.



In Uganda, some 50 health centres and 53 hospitals have been equipped with e-health facilities, including computers, scanners and audio-visual equipment to facilitate teleconsultation, while an advanced telemedicine project is being piloted in the Isingiro district.



An e-health company is rolling out physical stations with connected devices across

Kenya to enable access for anyone wishing to contact a medical professional.



Use of inexpensive lower-resolution, black-and-white ultrasounds and three-parameter patient monitors, where appropriate, is also common in emerging markets.



Many African countries are moving rapidly towards Universal Health Care (UHC). In Kenya, for example, there is a National Task Force exploring how precision medicine can be incorporated in UHC.

Contact

Alta Semper Capital
35 Berkeley Square
London, W1J 5BF
United Kingdom
+44 (0)20 7100 0670
info@altasemper.com
www.altasemper.com