

# Investment and Trade Landscape and Opportunities in African Healthcare

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**The contents of this report build on prior work prepared by CrossBoundary for Prosper Africa, a U.S. Government initiative.**



Prosper Africa is the U.S. Government initiative to increase two-way trade and investment between the United States and African nations. Prosper Africa works hand-in-hand with the private sector and African government partners to advance deals, promote market opportunities, and strengthen business and investment climates. In so doing, Prosper Africa creates jobs for both African and American workers and fosters sustainable and inclusive economic growth.

Since launching Prosper Africa, the U.S. Government has directly supported 800 deals to close across 45 African countries for a total value of \$50 billion.

Prosper Africa engaged CrossBoundary, a mission-driven investment firm that unlocks capital for sustainable growth and strong returns in underserved markets, to carry out this study.

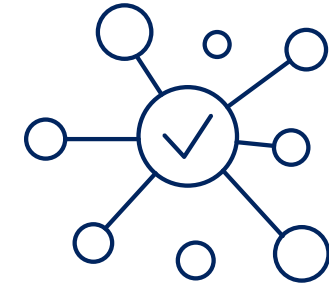
This report was prepared by Nneka Chime, Lesley Reddy, Seyi Williams, Stefan Pagura, George Managoba, Paul Ouma, Stephen Murray, Jamie McInerney, Marília dos Reis Martins, and Jake Cusack. Special thanks to contributions from Aubrey Hruby, and to the many stakeholders engaged during this study within the U.S. Government.

PROSPER AFRICA

» Executive  
Summary



**African Healthcare is presenting increasing opportunities for investors across asset classes, despite headwinds as healthcare markets are developing rapidly across the continent.**



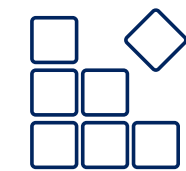
## Market Context



Africa makes up 16% of the world's population and carries 23% of the global disease burden, **yet it accounts for only 1% of total global health expenditures.**



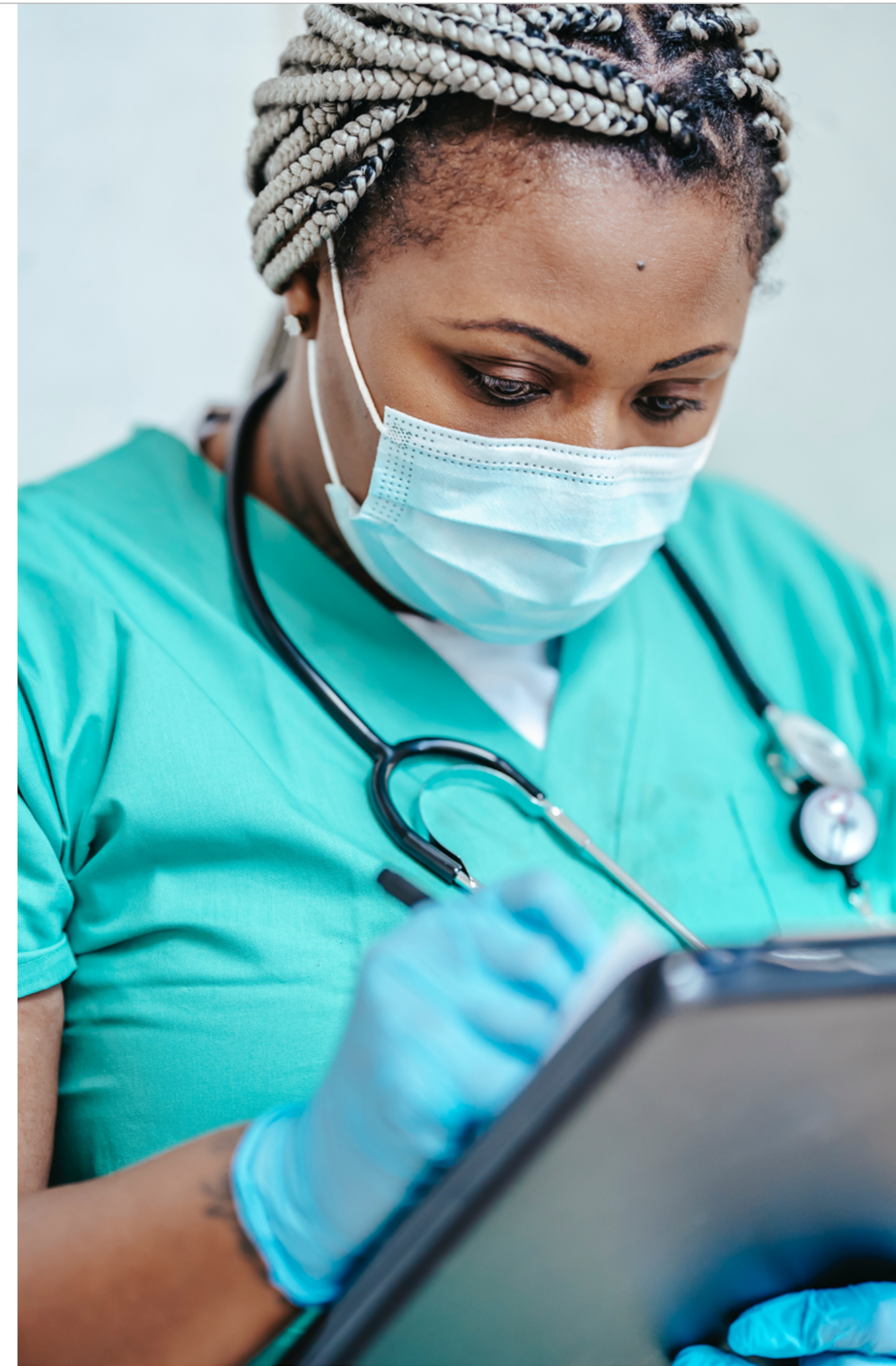
The COVID-19 pandemic **highlighted the fragilities within the African healthcare system:** limited access to medical consumables such as PPE, lack of access to critical diagnostics, and initially no production capacity for COVID-19 vaccines, among others.



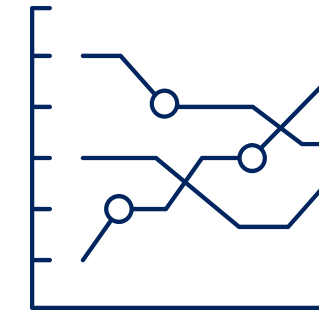
**Africa remains a very fragmented market,** especially in heavily regulated sectors like healthcare where harmonization is still nascent.



**Africa's population continues to grow rapidly,** with Africa set to be the home to at least 25% of the world's population by 2050.



**African Healthcare is presenting increasing opportunities for investors across asset classes, despite headwinds as healthcare markets are developing rapidly across the continent.**



## Market Trends



The **rapid and continued urbanization of Africa's growing population** is reducing the costs to reach patients and improving business scale. Improving asset utilization through a broader customer base continues to unlock low margin, high volume businesses.



**Changing lifestyles along with increased life expectancies** are fundamentally driving changes in the disease mix and healthcare needs, with a greater burden of disease being non-communicable and chronic, resulting in new care demands.



**Increasing regulatory harmonization** with initiatives such as the AfCFTA, and the African Medicines Agency signal the potential for individual markets to be transformed into regional and potentially continental plays.



The African consumer is becoming **Increasingly digitally connected**. Given this increasing digitiation, venture capital continues to grow as an asset class within African healthcare, with over **\$300M being invested over the last 5 years**.



Poor health worker welfare, low remuneration and declining livability at home coupled with capacity shortfalls and high health worker demand in more developed markets have fueled recent **health worker emigration** from Africa. If left unchecked, this could cripple future health security goals, and requires new approaches to health worker recruitment internationally and retention programs in Africa.



Driven by impact considerations, saturated domestic markets and several high-profile success stories, there is a growing class of repeat and 'Africa Curious' investors. To date, these **investors have largely concentrated in the large and familiar markets of Nigeria, Kenya, South Africa and Egypt**. Nevertheless, many investors still sit on the sidelines of this growing opportunity.

**African Healthcare is presenting increasing opportunities for investors across asset classes, despite headwinds as healthcare markets are developing rapidly across the continent.**



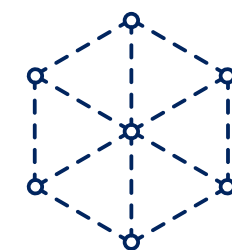
## Opportunities



Opportunities exist across asset classes in African healthcare, with an increasing space for investors that are willing and able to provide **growth capital to tech enabled businesses that need to also vertically integrate** into more capital-intensive parts of their value chain.



There continues to be significant scope for increased investment across the value chain of care services, especially in more **specialized outpatient services and in diagnostics that enable more advanced treatment**. Telehealth infrastructure has also unlocked new models to improve asset efficiency.



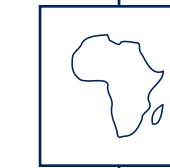
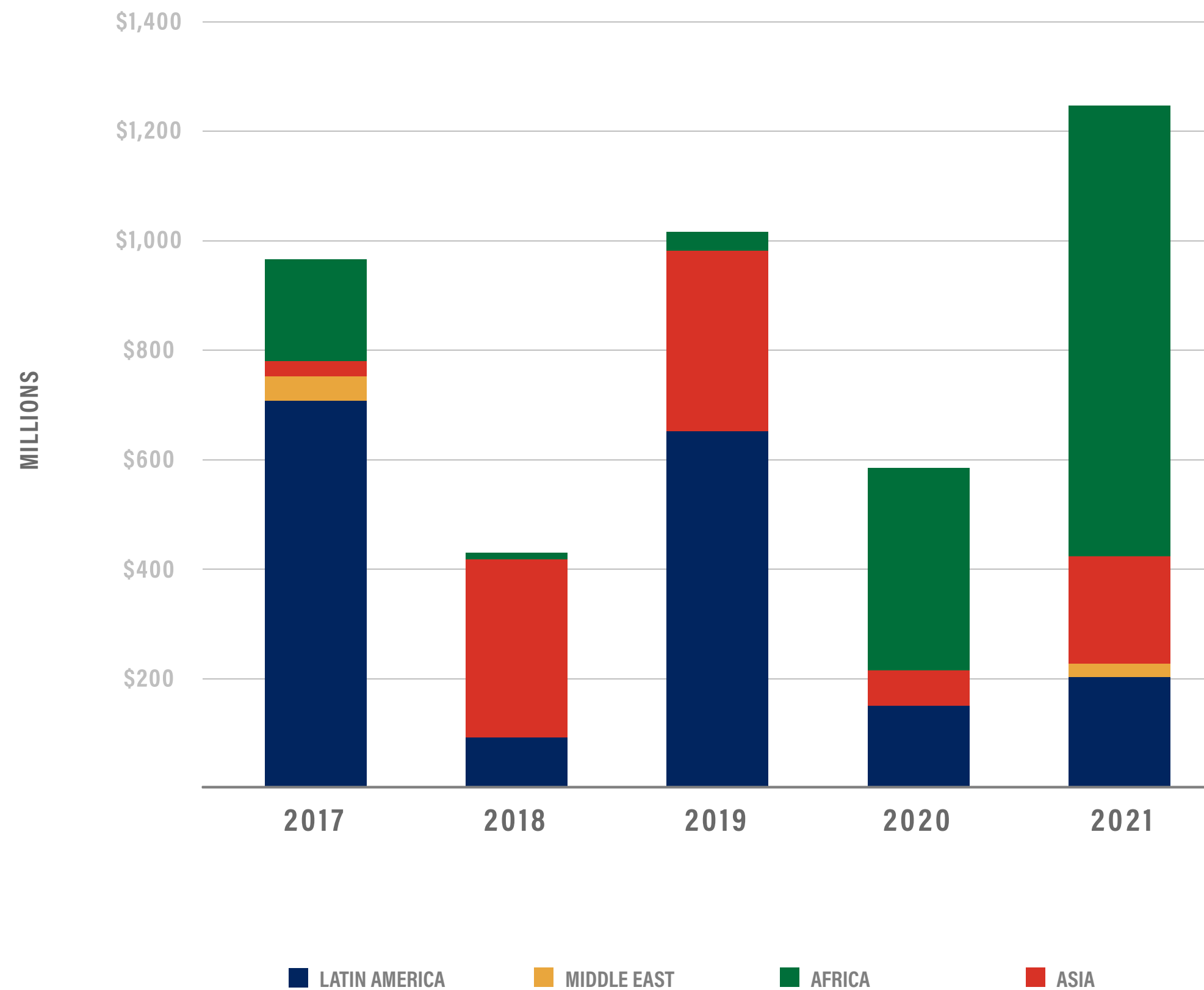
Investors that can **navigate local idiosyncrasies, forge links amongst stakeholder groups, capitalize on positive trends** and adapt to headwinds with nimble and innovative business models that are well positioned to capitalize on the vast opportunities.



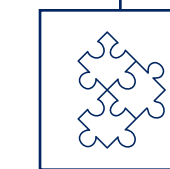
**COVID-19 highlighted fragilities in emerging market healthcare systems, spurring investment to boost resilience driven by technology-enabled solutions.**

Across underserved markets globally, healthcare investment has strongly rebounded from COVID lows driven by a desire to invest in health systems.

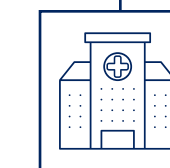
**5-year flow of PE/VC healthcare investment in underserved markets\***



Africa has seen a marked jump in overall share of investment across these markets, largely driven by Africa's young and fast-growing population, growing consumer class, changing healthcare economics, leapfrog tech opportunity, and recognition that private sector innovations are needed to overcome healthcare system inefficiencies.



However, challenges persist across African healthcare markets, and these flows are still heavily concentrated in larger markets as regional integration on key components like regulatory harmonization is still lagging.



The tech-forward growth model creates a demand case to support investment into more traditional value chains – the value chain still ends with a medical professional, usually in a physical facility.

Source: Pitchbook

\*Includes Angel/Accelerator,VC,PE,,Excludes debt,grants,secondary market transactions and reverse acquisitions;

Excludes India and China.

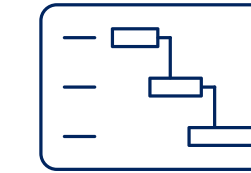


**There were four key subsectors driving increased investment in Africa’s healthcare landscape over the past six years – all of which continue to grow.**



**Provision of care services**

This sub-sector attracted over US\$500M in investor capital over the last five years led by Kenya, South Africa, and Egypt. Telemedicine has been a cross cutting theme across markets. Brick and mortar businesses require more supportive enabling infrastructure and capex which has been a challenge in mobilising more investment. Pharmacies are taking on an increasingly important role as the first point of care, increasing the scope of services offered.



**Healthcare Data Management & Analytics**

There has been strong demand for digitization of healthcare records management from stakeholders. This continued growth is driving the need for data protection harmonisation and capacity building as new systems are being built in advance of clear regulations. This sub- sector has strongly appealed to Venture Capital investors.



**Manufacturing of medical commodities/products**

COVID-19 highlighted Africa’s reliance on imports for critical medical goods - including vaccines - increasing support for local manufacturing. Markets with a strong industrial base and regulatory environment are most attractive investment destinations for these long-term projects.



**Biomedical Research**

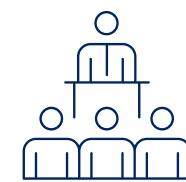
This is a nascent sub sector in African healthcare with early-stage companies devising innovative solutions. 54Gene and Yemaachi Biotechnology are notable companies who have had to build out more conventional value chains to support their service offerings.

**Headwinds across Africa’s healthcare landscape still require key enabling interventions to support investment - all of which require cross-sector partnership.**

**Pioneering enterprises** are likely to encounter several **enabling environment headwinds** as they scale



Regulatory harmonization is required to create a single marketplace for goods and services, spurring cross-border investment and reducing duplicative market entry costs.

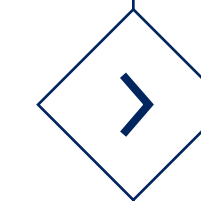


Solutions are needed to alleviate the lack of trained medical professionals, a key supply-side constraint to expansion of medical service areas across the value chain. This is key to enable growth narratives for investment.

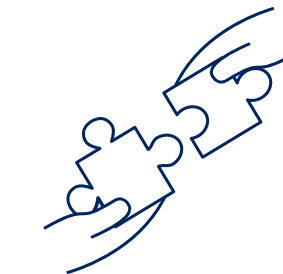


Solutions to bridge the affordability gap in healthcare consumer spending are needed to spur private investment, where resilient revenue models are required.

Long-term market growth will require **continued enabling environment interventions** to allow pathways to scale across smaller and fragmented markets.



However, these headwinds should not disincentivize investment, but rather should **create the beginnings of a framework for increased engagement between stakeholders.**



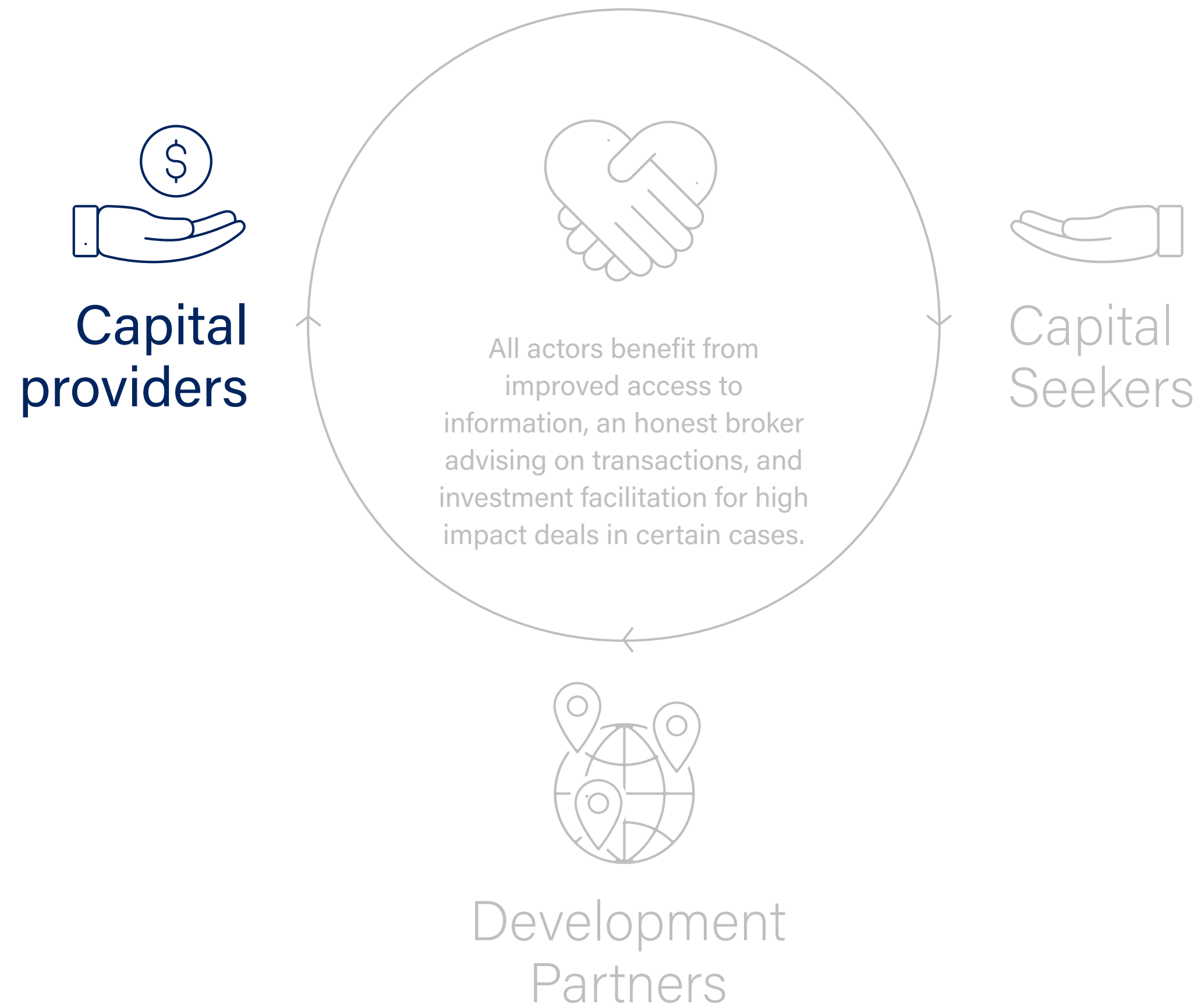
Across all three issue areas, there is scope and need **for greater coordination across public and private sectors** in order to find solutions that will enable continued growth across the sector.

Source: Pitchbook

\*Includes Angel/Accelerator,VC,PE,,Excludes debt,grants,secondary market transactions and reverse acquisitions;

Excludes India and China.

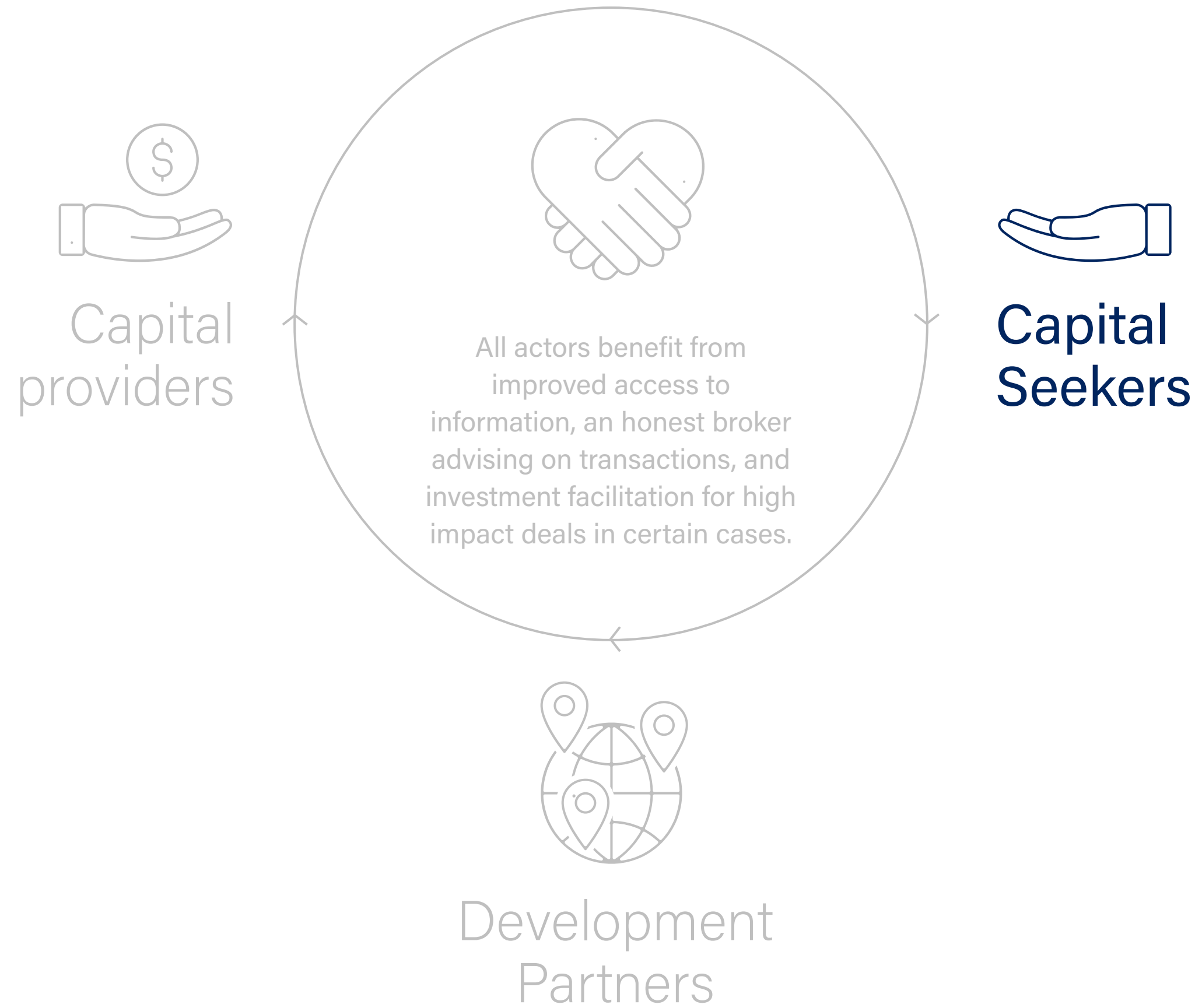
Across African Healthcare investment, there is a need to reduce the information asymmetries that persist, and for better coordination among public and private partners.



**Capital Providers**

- » Require access to relevant and sector specific deal pipeline outside of their own networks, especially since there are very few healthcare specialist investors across the continent.
- » Require support to facilitate exits and demonstrate success stories to attract more risk averse capital.
- » Require advisory support for market landscaping, and navigating regulatory and government procurement systems.

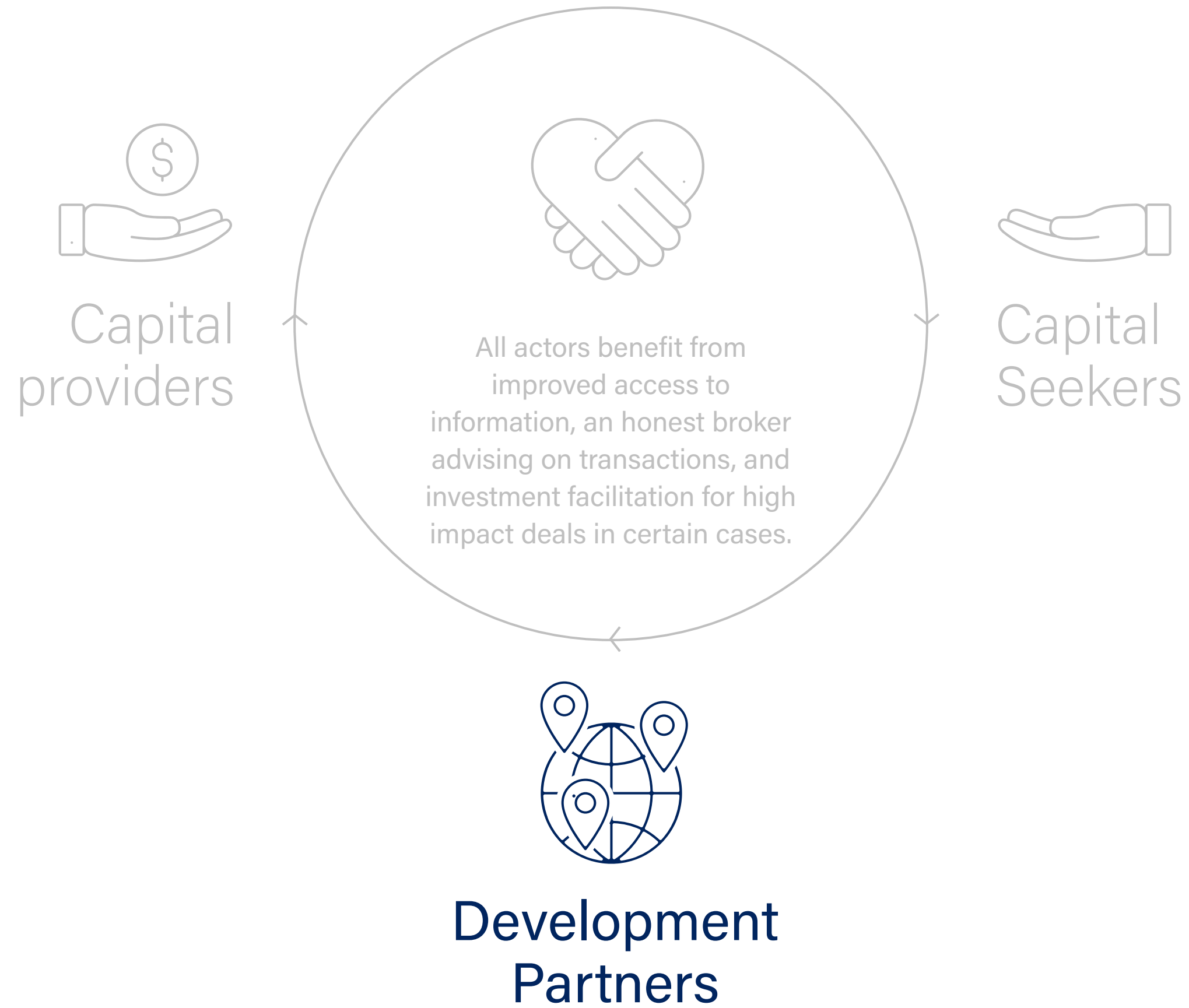
Across African Healthcare investment, there is a need to reduce the information asymmetries that persist, and for better coordination among public and private partners.



**Capital Seekers**

- » Require targeted access to capital providers beyond their own networks.
- » Require active promotion of deals in more innovative/ disruptive sectors, and pre-capital raising support for investment rationalization, financial analysis and strategy development.
- » Require advisory support for market entry strategies, navigating regulatory and governance requirements, and capital raising.

Across African Healthcare investment, there is a need to reduce the information asymmetries that persist, and for better coordination among public and private partners



**Development Partners**

- » Require financial expertise in developing models/ funding structures that target healthcare related issues.
- » Require feasibility study support for innovative sectors and delivery models.

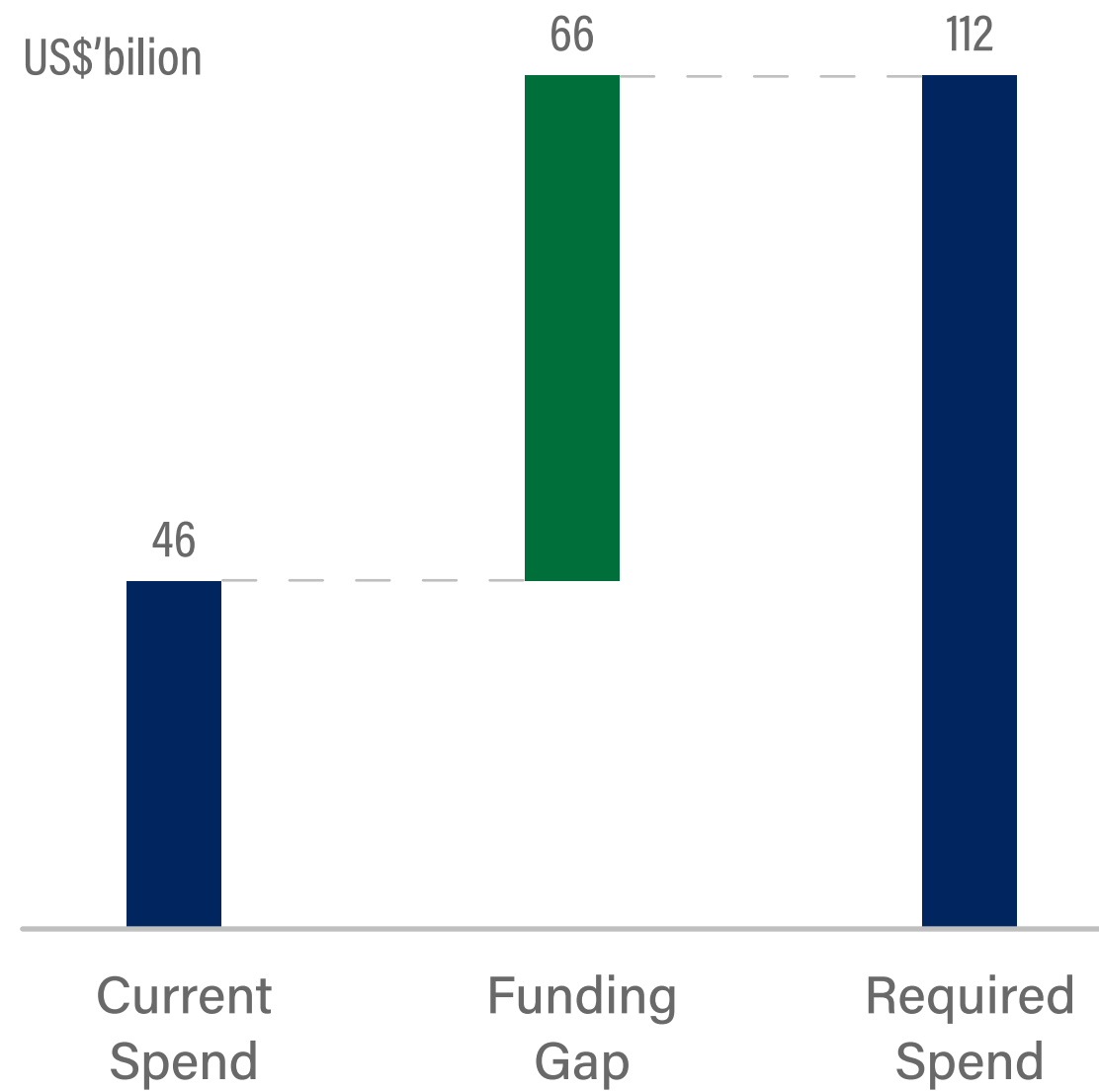
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» African Healthcare  
Investment Landscape



Despite these challenges investors still see opportunities across the continent - since 2016, over US\$2.2B has been invested in African healthcare<sup>1</sup>, although highly concentrated in 5 markets.

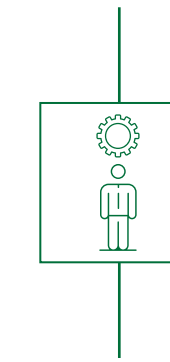
In 2015, Africa's health financing gap was estimated at US\$66B per annum\*



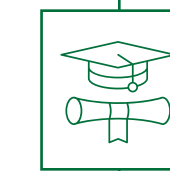
"Hospital infrastructure is decaying, pay isn't high enough [with] mostly stagnant wages [since] the 90's."

CEO & Founder  
Biotech company

...which has led to poor basic healthcare infrastructure and service delivery



**Access to care:** Africa is exposed to over 22% of the global disease burden and yet commands less than 1% of global health expenditure and has access to only 3% of healthcare workers



**Medical brain drain:** Underinvestment has put a strain on existing infrastructure, working conditions, and health workers which has contributed to a c.US\$2B annual loss on training costs as African doctors emigrate to high-income countries



**Out of pocket spending:** c.38% of healthcare spend in the African Union is out of pocket, increasing the strain on household finances in a region where one in three Africans live below the global poverty line of US\$1.9/day

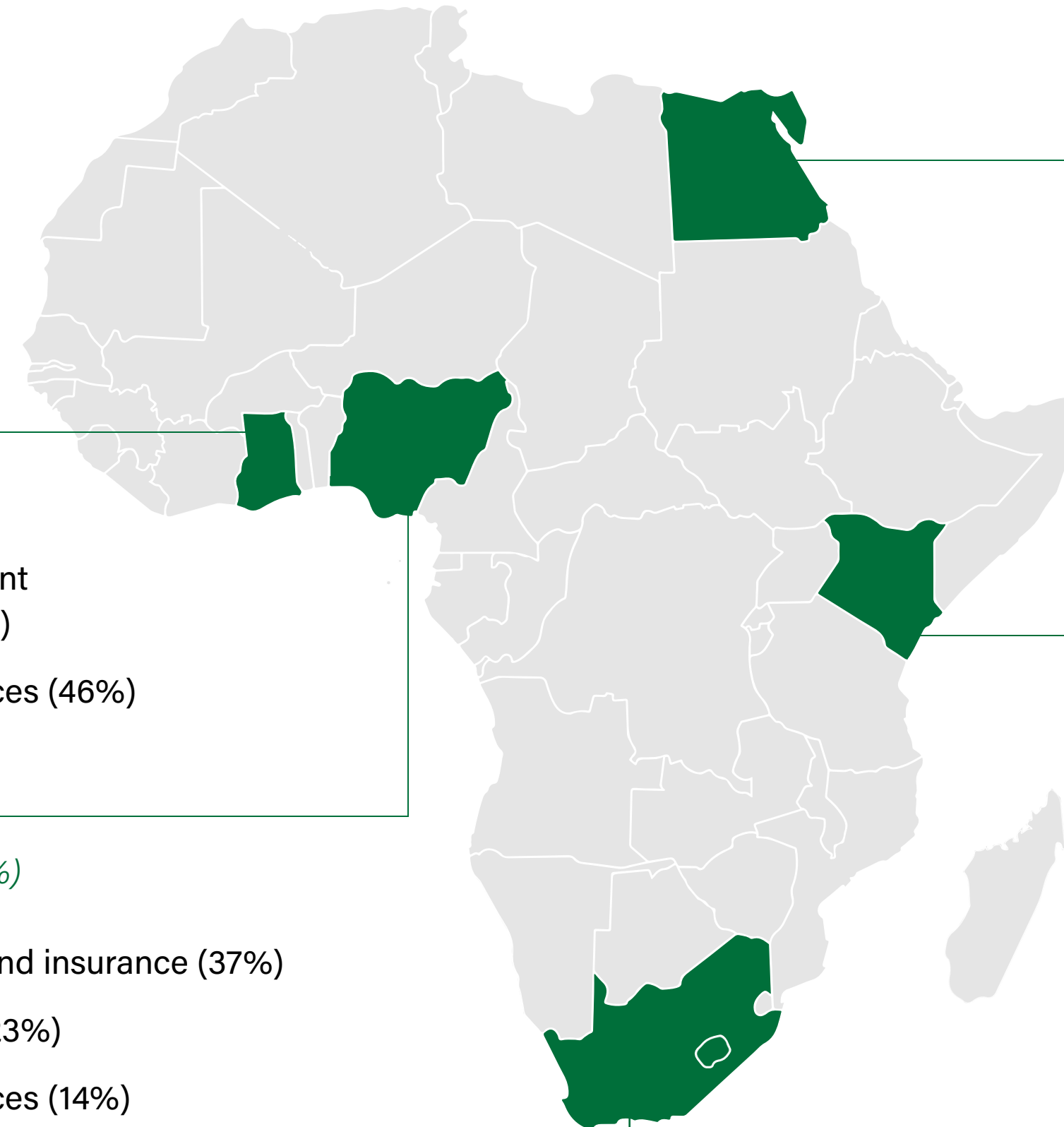


**Poor regulatory framework:** Underinvestment in National Medicines Regulatory Authorities (NMRAs) has led to inconsistency of skills and authority between countries along with limited access to competent regulatory professionals

<sup>1</sup> Includes Angel/Accelerator, VC, PE, Corporate transactions. Excludes debt, grants, secondary market transactions and reverse acquisitions.

\*Funding gap is defined as the shortfall in healthcare spend against a target spend of five percent of Gross Domestic Product Source: UN Economic Commission for Africa:Healthcare and Economic Growth in Africa (2019), WHO: World Health Report (2006), World Bank Data:Out of Pocket Expenditure (2018), Reuters:Doctor brain drain costs Africa US\$2 billion (2011), BMC:Harmonization of medical products regulation (2011).

Despite these challenges investors still see opportunities across the continent - since 2016, over US\$2.2B has been invested in African healthcare<sup>1</sup>, although highly concentrated in 5 markets.



**GHANA** US\$76M (3%)

**Key sectors:**

- » Healthcare management and data science (54%)
- » Provision of care services (46%)

**NIGERIA** US\$200M (9%)

**Key sectors:**

- » Healthcare financing and insurance (37%)
- » Biomedical research (23%)
- » Provision of care services (14%)

**SOUTH AFRICA** US\$400M (18%)

**Key sectors:**

- » Retail & distribution (42%)
- » Provision of care services (35%)
- » Manufacturing of medical commodities/products (17%)

**EGYPT** US\$1.27B (56%)<sup>2</sup>

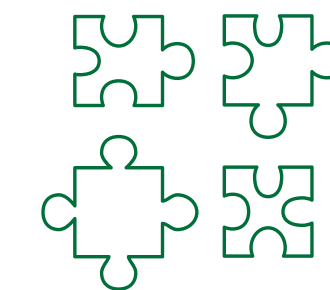
**Key sectors:**

- » Manufacturing of medical commodities/products (78%)
- » Provision of care services (16%)
- » Healthcare management and data science (6%)

**KENYA** US\$190M (8%)

**Key sectors:**

- » Provision of care services (76%)
- » Retail & distribution (11%)
- » Manufacturing of medical commodities products (10%)


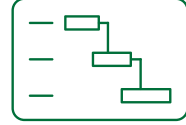




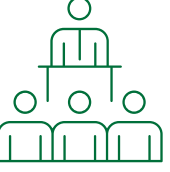


The concentration in larger, relatively mature markets indicates that investors prefer familiar markets with sufficiently robust local business cases as regional integration is still at the nascent. For smaller, frontier markets, investors can unlock opportunities by working with trusted local transaction advisors or building local market knowledge in-house.

Source: Pitchbook  
 1 Includes Angel/Accelerator, VC, PE, Corporate transactions. Excludes debt, grants, secondary market transactions and reverse acquisitions.  
 2 Total investment value for Egypt was inflated by large transactions including the acquisition of Amoun Pharmaceutical Company by ADQ through an estimated \$740M LBO on August 2, 2021.



**There are six core subsectors in the African healthcare value chain with digitization emerging as a cross-cutting theme**

 Biomedical Research	 Healthcare Data Management and Analytics	 Provision of care services	 Manufacturing of medical commodities / products	 Healthcare Financing and Insurance	 Retail and Distribution	 Medical Education
<ul style="list-style-type: none"> <li>» Pharmaceutical R&amp;D</li> <li>» Gene mapping / genetic testing</li> <li>» Targeted therapeutics</li> </ul>	<ul style="list-style-type: none"> <li>» Electronic medical records systems</li> <li>» Patient management systems</li> <li>» Digital health Systems</li> </ul>	<ul style="list-style-type: none"> <li>» Inpatient care (including primary care)</li> <li>» Outpatient care</li> <li>» Preventative care</li> <li>» Diagnostic services</li> <li>» Telemedicine</li> </ul>	<ul style="list-style-type: none"> <li>» Medical consumable commodities ex. pharma (e.g., Oxygen, PPE)</li> <li>» Pharmaceutical manufacturing</li> <li>» Medical devices</li> </ul>	<ul style="list-style-type: none"> <li>» Working capital financing</li> <li>» Private health insurance</li> <li>» Insurtech</li> </ul>	<ul style="list-style-type: none"> <li>» Commodities and assets distribution</li> <li>» Medical device distribution</li> <li>» Sample logistics</li> <li>» Pharmaceutical distribution</li> <li>» Pharmacies</li> </ul>	<ul style="list-style-type: none"> <li>» Healthcare Administration</li> <li>» Upskilling healthcare workers</li> <li>» Hands-on specialist training courses</li> </ul>

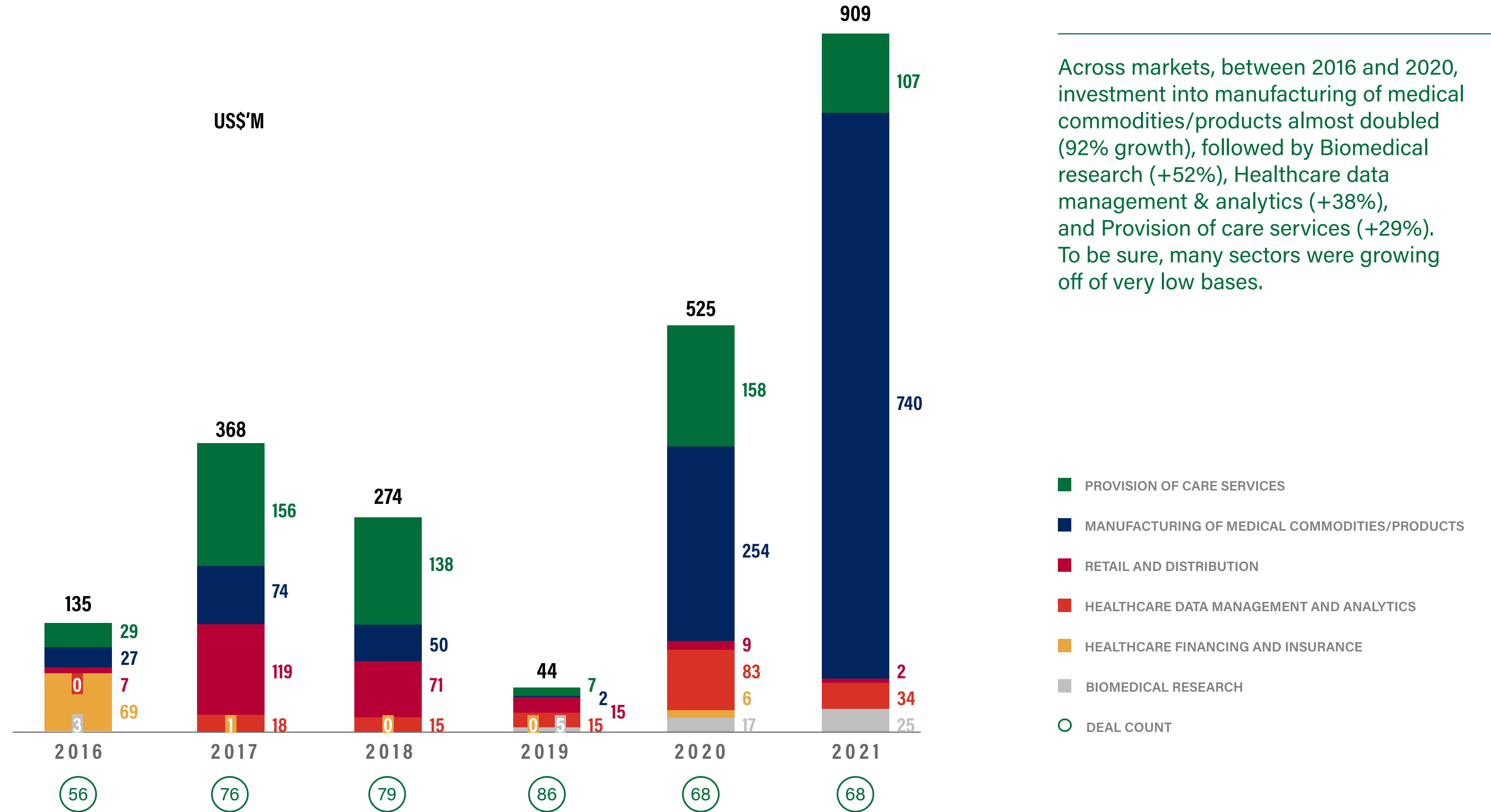
SUB-SECTOR INVESTMENT 2016 - 2021



Source: IFC, Pitchbook  
Note: Not representative of all companies in the indicated subsectors

**Investor interest in African healthcare increased significantly in 2021, driven by investments in the provision of care services and manufacturing sub-sectors**

**Investment value in African healthcare has been inconsistent through the years, but 2021 brought record investment**

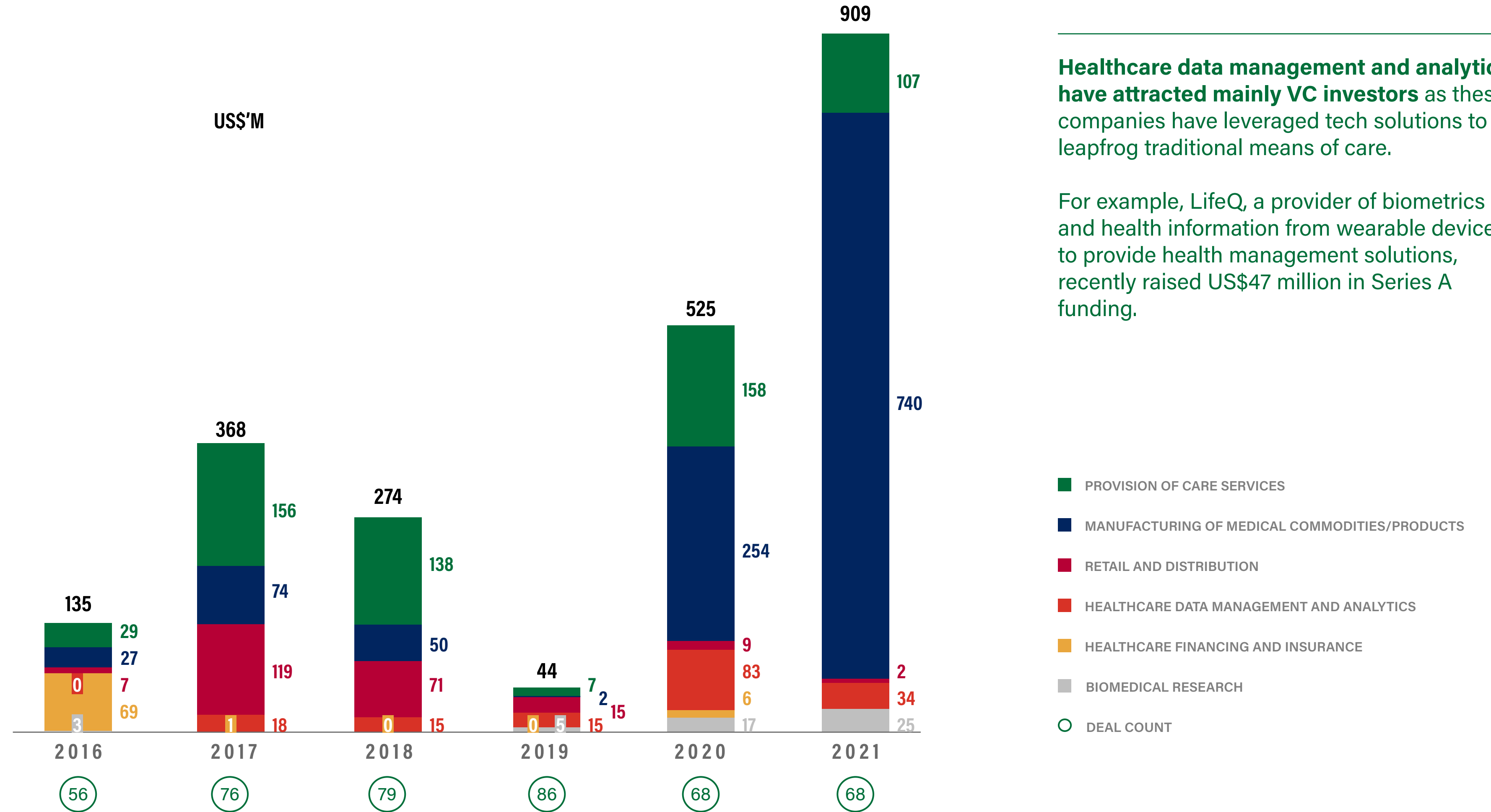


Across markets, between 2016 and 2020, investment into manufacturing of medical commodities/products almost doubled (92% growth), followed by Biomedical research (+52%), Healthcare data management & analytics (+38%), and Provision of care services (+29%). To be sure, many sectors were growing off of very low bases.

Source: Pitchbook  
 1 Based on disclosed transactions values

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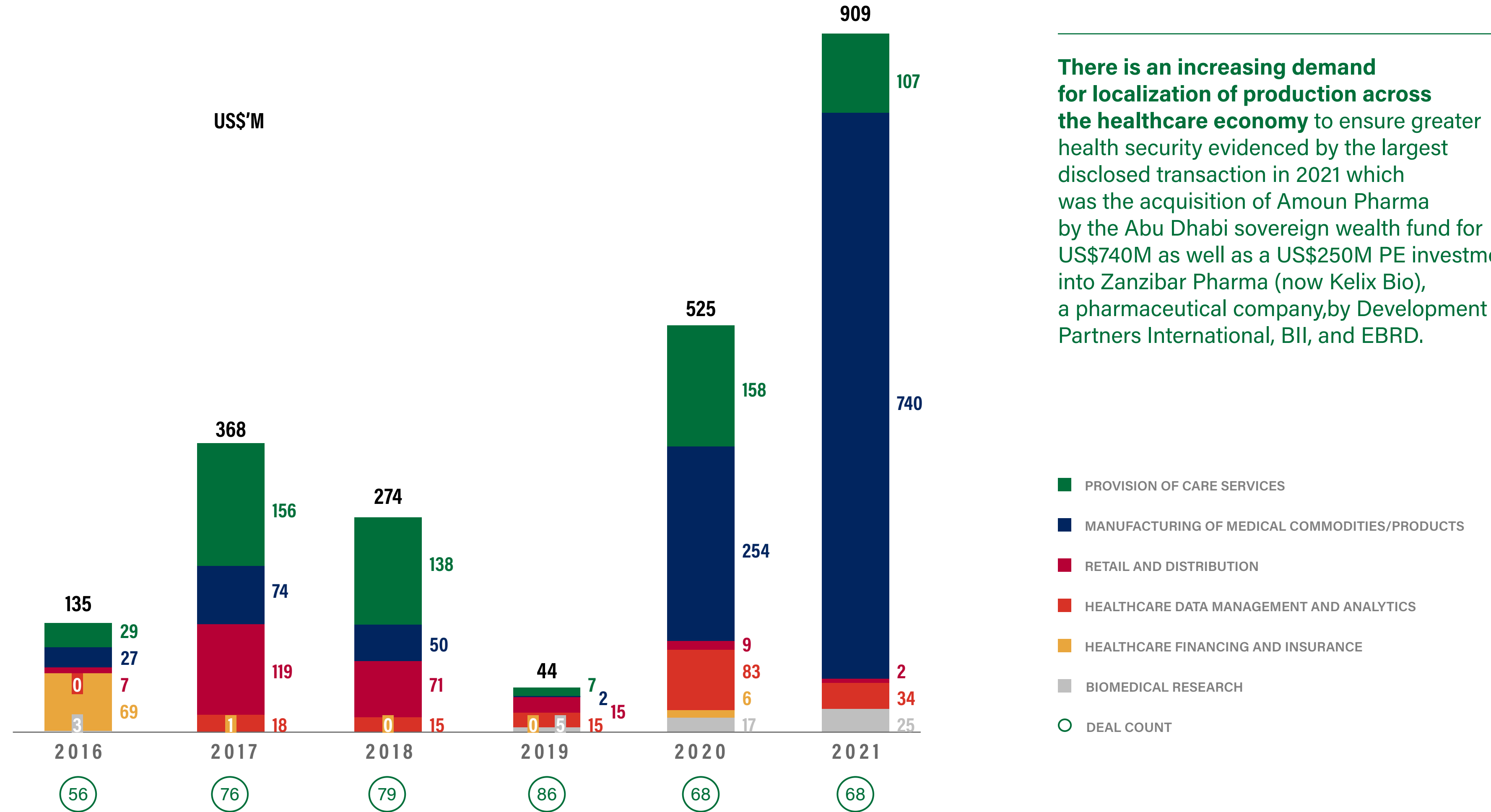
**Healthcare data management and analytics have attracted mainly VC investors** as these companies have leveraged tech solutions to leapfrog traditional means of care.

For example, LifeQ, a provider of biometrics and health information from wearable devices to provide health management solutions, recently raised US\$47 million in Series A funding.

Source: Pitchbook  
1 Based on disclosed transactions values

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**There is an increasing demand for localization of production across the healthcare economy** to ensure greater health security evidenced by the largest disclosed transaction in 2021 which was the acquisition of Amoun Pharma by the Abu Dhabi sovereign wealth fund for US\$740M as well as a US\$250M PE investment into Zanzibar Pharma (now Kelix Bio), a pharmaceutical company, by Development Partners International, BII, and EBRD.

Source: Pitchbook  
1 Based on disclosed transactions values

Various groups of investors continue to deploy capital across the Healthcare value chain in Africa albeit concentrated in more developed markets

	Angel / Accelerator	Venture Capital	Private Equity	Corporate
SAMPLE OF INVESTORS				
INVESTMENT VALUE (2016 - 2021)	US\$17M	US\$316M	US\$1.6B	US\$320M
TOP 3 SECTORS FOR INVESTMENT	<ul style="list-style-type: none"> <li>» Healthcare data management &amp; analytics (34%)</li> <li>» Provision of care services (27%)</li> <li>» Biomedical research (20%)</li> </ul>	<ul style="list-style-type: none"> <li>» Healthcare data management &amp; analytics (52%)</li> <li>» Provision of care services (18%)</li> <li>» Biomedical research (15%)</li> </ul>	<ul style="list-style-type: none"> <li>» Manufacturing of medical commodities/products (62%)</li> <li>» Provision of care services (26%)</li> <li>» Retail &amp; distribution (8%)</li> </ul>	<ul style="list-style-type: none"> <li>» Manufacturing of medical commodities/products (43%)</li> <li>» Provision of care services (39%)</li> <li>» Retail &amp; distribution (18%)</li> </ul>
TOP 3 COUNTRIES FOR INVESTMENT	<p><b>South Africa (47%)</b> Egypt (23%) Ghana (13%)</p>	<p><b>Nigeria (28%)</b> Ghana (23%) Egypt (23%)</p>	<p><b>Egypt (74%)</b> Kenya (9%) South Africa (7%)</p>	<p><b>South Africa (75%)</b> Morocco (12%) Kenya (6%)</p>
INVESTEE COMPANIES				

## COVID-19 introduced multiple shocks to African healthcare systems at once...

### SHIFTING CARE FOCUS

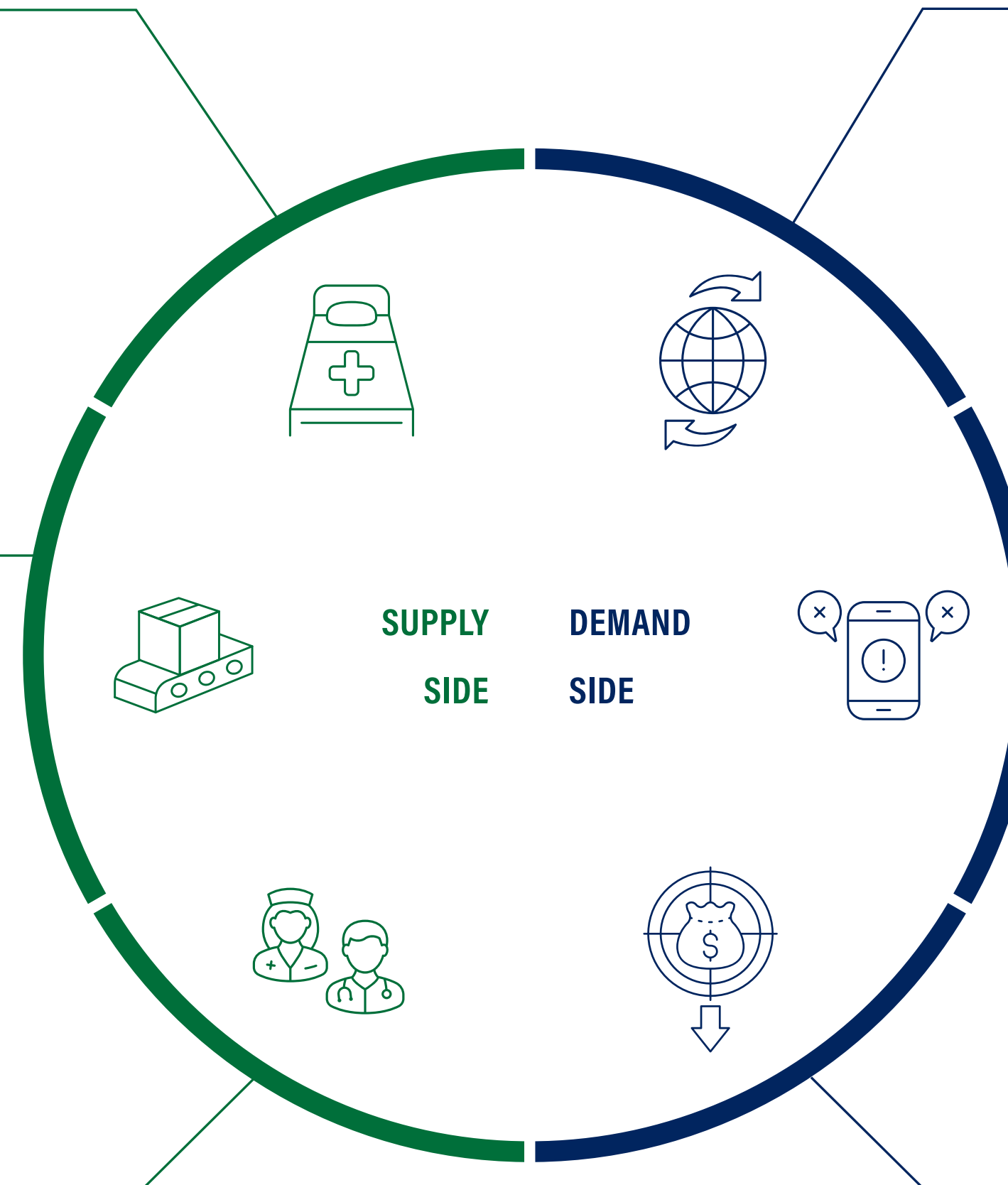
Amid bed shortages, there was a prioritization of medical facilities toward COVID-19 care, reducing availability of or purposefully deferring voluntary procedures as well as disrupting treatment for noncommunicable diseases (NCDs).

### SUPPLY CHAIN DISRUPTIONS

Global supply chains were disrupted, especially in critical equipment and medicines. Africa was critically affected as countries prioritized domestic needs over exports which led to repurposing activities across the continent.

### PERSONNEL ATTRITION

COVID-19 care put mental and physical strain on health workers who were already underpaid and caused burnout. This greatly contributed to the emigration of workers to countries with better quality of life.



### MOVEMENT RESTRICTIONS

Lockdown restrictions limited access to healthcare services both domestically and globally affecting medical tourism.

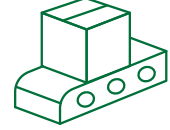



### INFORMATION / DATA TRANSPARENCY

There has been vaccine hesitancy on the continent due to misinformation on efficacy and side effects which has contributed to Africa having a very low vaccine coverage compared to other continents. Additionally, medical statistics such as COVID-19 prevalence and vaccine uptake have been tough to monitor in real time.

### REDUCTION IN INCOMES

The pandemic negatively impacted African economies pushing 40 million people into extreme poverty. This has led families to prioritize spending shifting away from healthcare.

...several of which have spurred trends which create growth opportunities in four key healthcare subsectors

Disruption	Trend	Rationale for Investment	How investors can capitalize
 <p><b>SUPPLY CHAIN DISRUPTIONS</b></p>	<p>Localization of medical manufacturing capacity</p>	<ul style="list-style-type: none"> <li>» Policy changes have created greater incentives for local manufacturing capacity.</li> <li>» Increased awareness by development partners of impact of international procurement.</li> </ul>	<p><b>Manufacturing of medical commodities/products</b>, including pharmaceuticals and vaccines – particularly goods where value chains can be intra-Africa.</p>
 <p><b>MOVEMENT RESTRICTIONS</b></p>	<p>Increased uptake of remote care solutions such as telemedicine</p>	<ul style="list-style-type: none"> <li>» New consumer habits created during the pandemic will likely endure, enabling continued HealthTech adoption.</li> <li>» Enables greater productivity in healthcare assets by reducing value chain bottlenecks.</li> </ul>	<p>Investments in <b>care provision</b>, including ‘asset light’ models that leverage technology can improve the productivity of healthcare assets (e.g., teleradiology).</p>
 <p><b>INFORMATION / DATA TRANSPARENCY</b></p>	<p>Expanding market for health services by stimulating patient demand through education</p>	<ul style="list-style-type: none"> <li>» There is a continued demand for greater transparency in the healthcare system coming from both governments and patients.</li> <li>» Greater patient information also helps to increase demand within the system by empowering patient decision making.</li> <li>» Companies providing improved transparency and therefore trust can improve utilization in the healthcare system by empowering patients and helping reduce costs.</li> </ul>	<ul style="list-style-type: none"> <li>» <b>Healthcare Data Management and Analytics</b> systems that can not only improve patient access to information to drive demand, but also improve health system management.</li> <li>» <b>Digitally enabled care provision</b> that can better track trends in care provision, and increase information in the system to improve CapEx investment decisions, while also empowering patients through increasing transparency.</li> </ul>
 <p><b>SHIFTING CARE FOCUS</b></p>	<p>Continued shift from epidemic disease to non-communicable diseases (NCDs)</p>	<ul style="list-style-type: none"> <li>» African populations represent an increasing proportion of those affected by NCDs, driving greater demand for longer term treatments like dialysis.</li> <li>» This is combined with the growth in middle class patients who have greater disposable income for healthcare.</li> </ul>	<ul style="list-style-type: none"> <li>» <b>Biomedical research</b> and improved data on African populations is required to create more targeted interventions.</li> <li>» Specialized outpatient services (e.g., nephrology, IVF).</li> </ul>

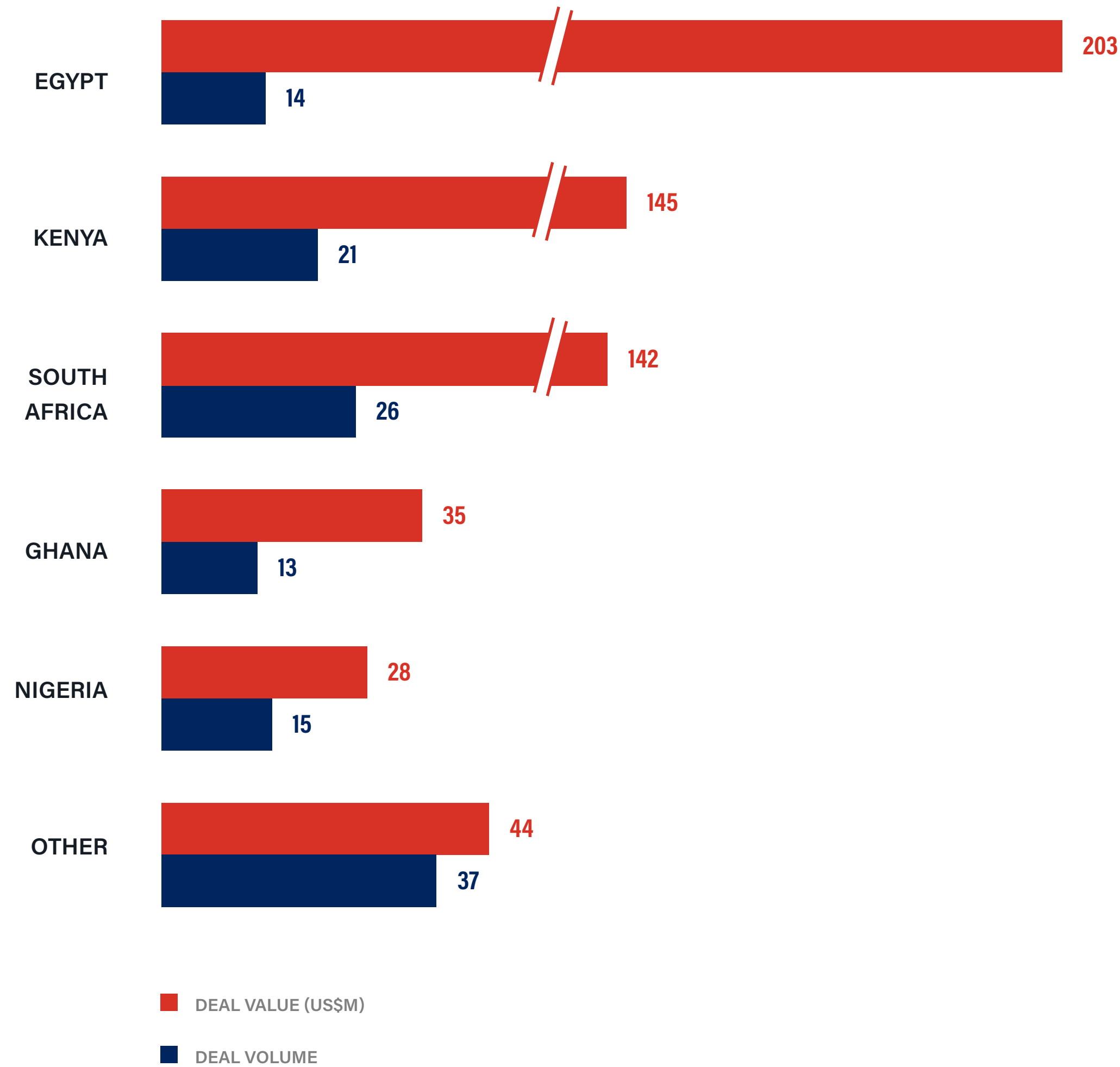
PROSPER AFRICA

» Investment  
Opportunities  
in High Growth  
Sectors





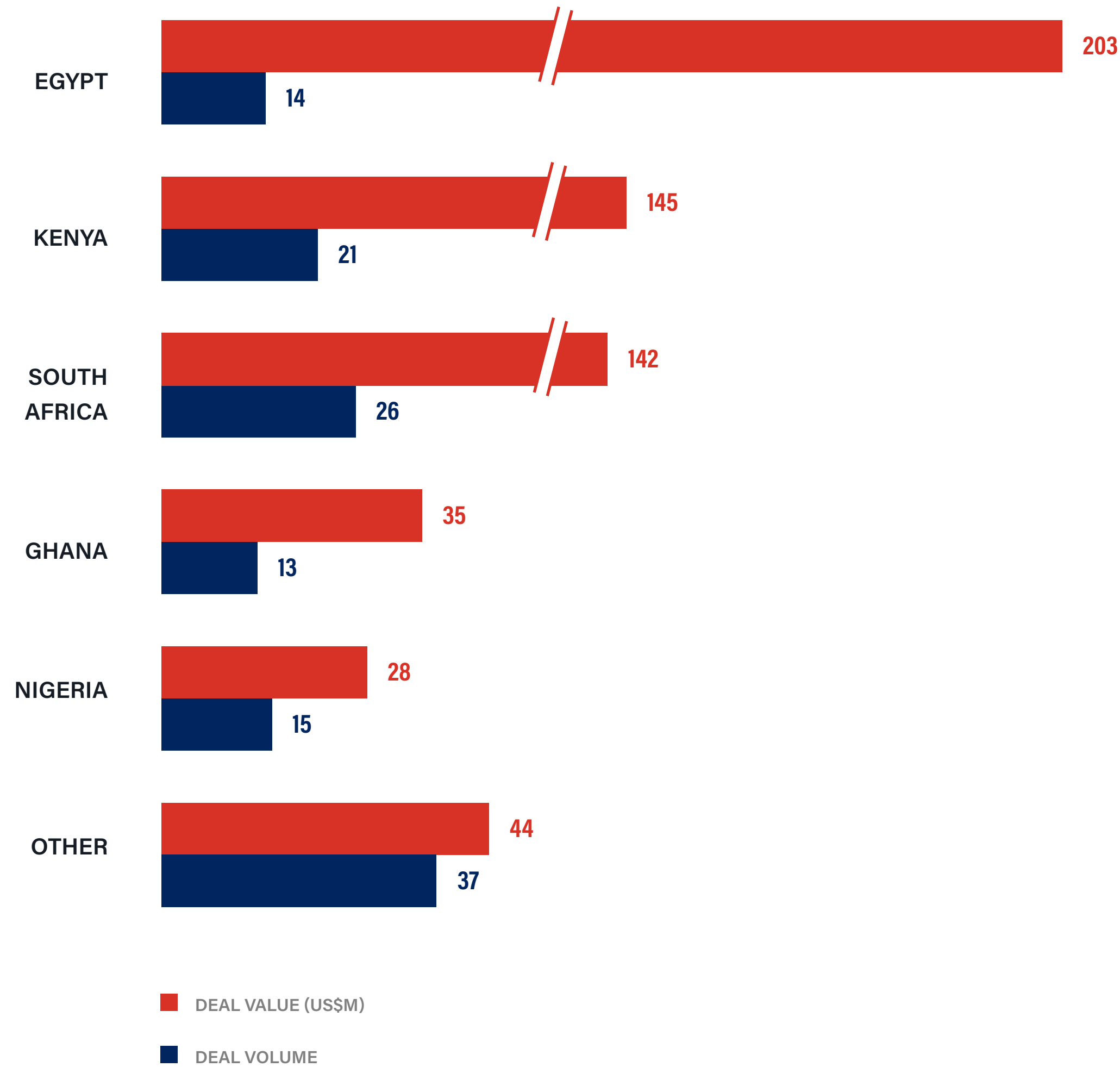
Driven by telemedicine and diagnostics, provision of care services has attracted almost US\$600M\* between 2016 and 2021 led by Egypt, Kenya, and South Africa



- » **The application of telemedicine to the provision of care services is a cross cutting theme across markets**, which we anticipate will continue as new client habits are solidified. This also helps to improve healthcare worker productivity, which is a key unlock in the region. Opportunities exist across the care provision sub-sector to increasingly digitize and increase asset productivity through greater usage.
- » **Brick and mortar investments** such as clinics and hospital networks **require more supportive enabling infrastructure to justify significant capex costs**, which has pulled investors to North and East Africa. Opportunities will continue to grow as demand increases, especially for more specialized inpatient care.
- » **East Africa is seen as one of the most attractive markets** - labor law, statutory payments, regulation - all very similar across the region, thereby allowing for regional expansion.

Source: Pitchbook  
\* Based on disclosed transaction values

Driven by telemedicine and diagnostics, provision of care services has attracted almost US\$600M\* between 2016 and 2021 led by Egypt, Kenya, and South Africa



» North Africa has been an attractive destination for specialized care investments to capture the African medical tourism market with the recent acquisition of the Egyptian IVF-ET center by BPE partners in 2021. There are opportunities to “re-shore” medical tourism back to Africa from India and elsewhere.

» Additionally, governments across East Africa are expanding government sponsored insurance schemes, supporting the growth in the overall market by increasing general ability to pay at the patient level. Opportunities will continue to grow as private sector partners are increasingly relied on to provide care provision in government sponsored insurance schemes, although the implementation of that is still early days.

Source: Pitchbook  
 \* Based on disclosed transaction values

Accelerators, VC and strategic investors have been most active in the provision of care services space, however, most investors are encountering challenges in mobilizing investment

	ANGEL / ACCELERATOR / VC	PRIVATE EQUITY	STRATEGIC (CORPORATE)
SAMPLE INVESTORS			
INVESTMENT VALUE (2016 - 2021)	US\$62M	US\$409M	US\$124M
INVESTOR SUB SECTOR PREFERENCES	<ul style="list-style-type: none"> <li>» Telemedicine</li> <li>» Remote diagnostics</li> <li>» Micro-clinics</li> </ul>	<ul style="list-style-type: none"> <li>» Hospital networks</li> <li>» Outpatient facilities</li> <li>» Diagnostic centers</li> </ul>	<ul style="list-style-type: none"> <li>» Clinics</li> </ul>
INVESTEE COMPANIES			

“ Investors had a hard time wrapping their heads around growth in brick- and-mortar business - they don't expect 100% growth in these businesses, so they don't want to pay 40x unit EBITDA which is the comp you get coming out of India.”

CEO & Founder  
Clinic Network

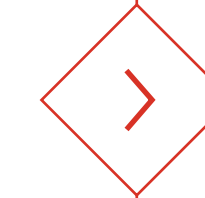
**Accelerators, VC and strategic investors have been most active in the provision of care services space, however, most investors are encountering challenges in mobilizing investment**

## Challenges faced in mobilizing investment

Investment into care facilities is challenged by a lack of adequate existing infrastructure. The build out of clinic/hospital networks may require greenfield investment which carries different risk/reward profile to traditional PE investment.

Investors in Africa prefer tech-focused businesses and will not pay a premium for brick-and-mortar businesses.

As businesses graduate from early stage to growth phases, more sophisticated governance and investor outreach is required.



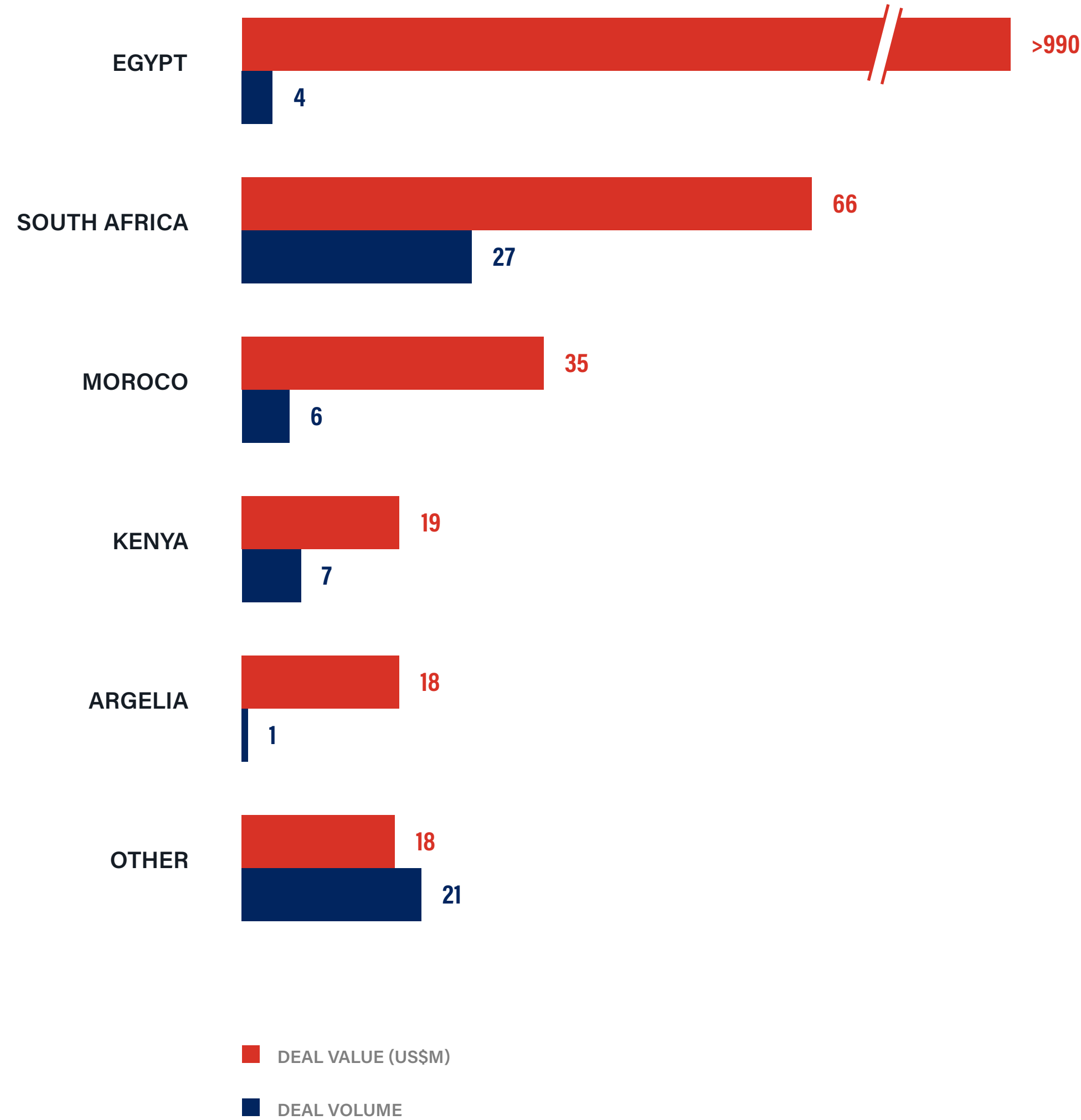
## Key takeaways on how the private sector can invest in asset intensive business models in African healthcare

Develop partnerships to spread and share risk of investment, particularly with vetted local players.

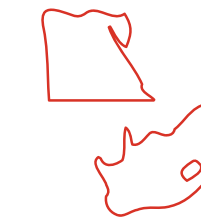
Utilize catalytic financing structures such as first loss capital, and other blended finance vehicles in conjunction with development finance partners.

Consider investing through tech-driven platforms that are vertically integrating.

**Egypt attracted 86% of investment\* across Africa in manufacturing of medical commodities and products between 2016 and 2021**



The largest disclosed deal in the market took place in Egypt, where Amoun Pharma, a drug manufacturer, was acquired by the Abu Dhabi Sovereign Wealth Fund for US\$740M in 2021 via a leveraged buyout.

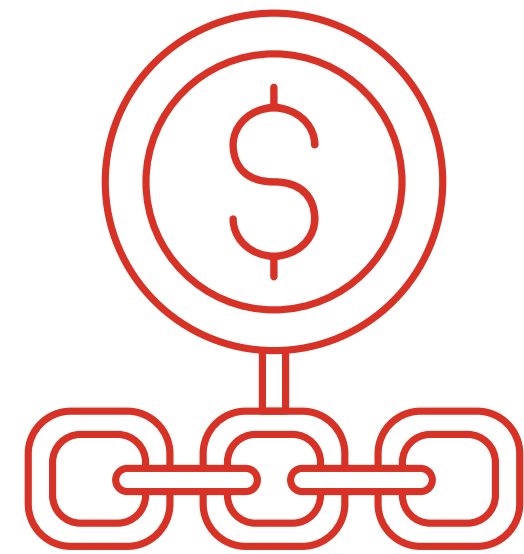


Egypt and South Africa have been a choice destination for large scale manufacturing investments due to their more developed industrial base, and relatively strong regulatory environments that offer opportunities for pharmaceutical manufacturing.



Regional manufacturing "hubs" are being developed to service sub-regions, with a focus on larger scale projects. These have long lead times and require patient capital (e.g., DFIs, sovereign wealth funds, development banks), but must be enabled by further regional integration and regulatory harmonization.

Source: Pitchbook  
\* Based on disclosed transaction values



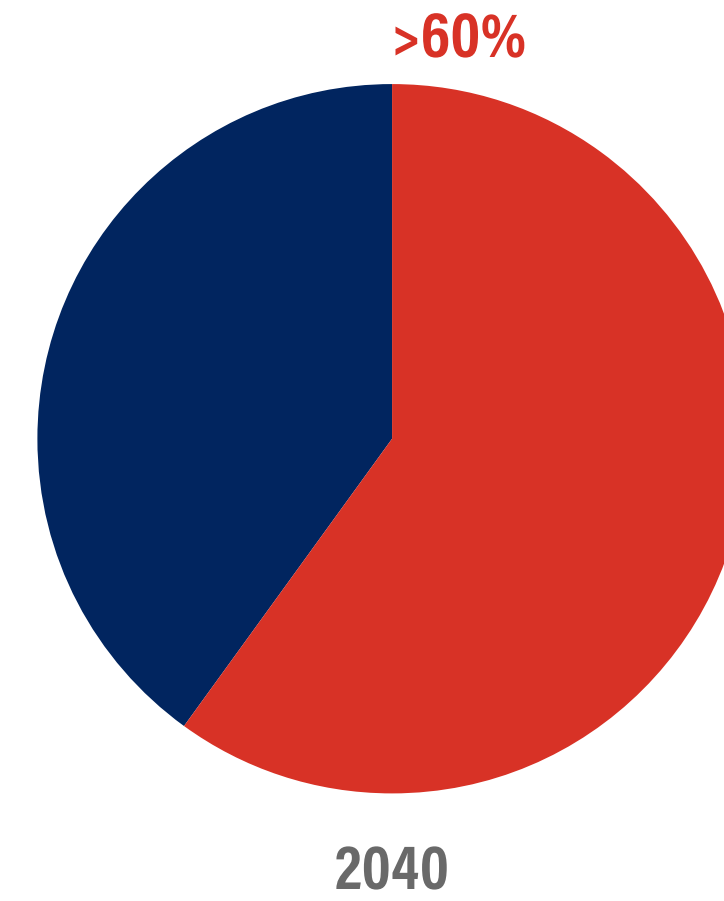
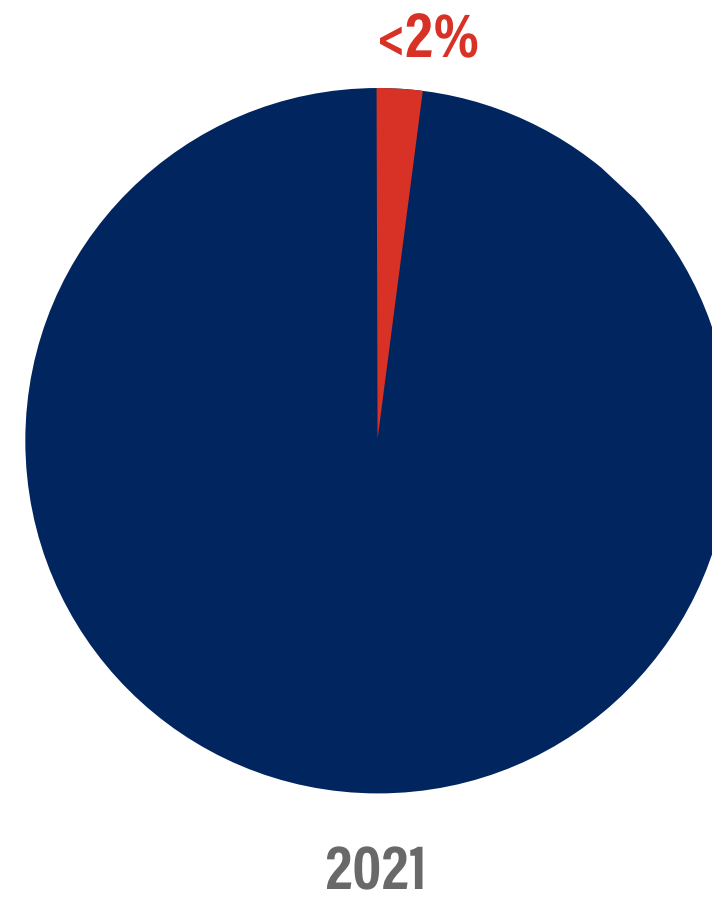
## KEY TAKEAWAY

Investments across the healthcare manufacturing value chain that can produce more competitively priced products for other businesses in the broader healthcare economy ultimately improve the input costs for those businesses, making those businesses more profitable.

Vaccine manufacturing is increasingly a focus area for collaboration - but these tend to be more complex, with a smaller number of direct investment opportunities

There is significant political will across Africa to increase local vaccine production...

Africa currently produces less than <2% of the vaccines it administers, with the rest being imported.



The African Union and Africa CDC want to change this to >60% of Africa's routine immunization needs being locally manufactured by 2040.

...which is being met by ambitions from international partners to bring new sites online, especially for COVID-19

The New York Times

Coronavirus >

**Moderna says it will build a vaccine factory in Africa, but that will take time.**

Healthcare & Pharmaceuticals

**South African firm to help make Pfizer/BioNTech COVID vaccine**

Reuters

Bloomberg

Business | Prognosis

**Aspen in Talks With J&J to Make Own Brand Vaccine for Africa**

By Janice Kew  
1 September 2017, 17:17 BST Updated on 2 September 2021, 14:38 BST

BioNTech + Add to myFT

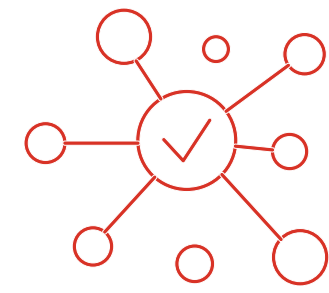
**BioNTech to open Africa's first mRNA manufacturing plant**

Rwanda and Senegal agreement a big step in plans to produce Covid jabs on the continent

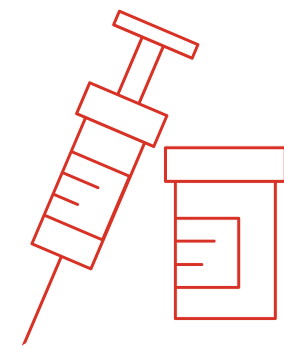
Source: Strong Backing for Vaccine Production for Africa, EIB (2021)

Source:Pitchbook

**Vaccine manufacturing is increasingly a focus area for collaboration - but these tend to be more complex, with a smaller number of direct investment opportunities**



But this extends beyond just COVID-19 vaccines – to be increasingly independent in vaccine production, and for investments to be long term viable, will require increased capacity in select regional hubs that can run production lines for standard immunization as well.





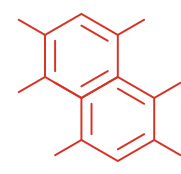


While intentions are meeting actions across this category, there will likely only be a handful of direct investment opportunities. This shift could however create opportunities to supply of related medical commodities (e.g, syringes, packaging, production commodities, etc.)





**Without substantial innovation, even the most rapid avenues to vaccine production will take ~5 years to come online – although new models are promising**

					
	<b>Downstream model with pack/label only</b>	<b>Downstream model with fill/finish and pack/label</b>	<b>Routine model with full domestic production</b>	<b>Leapfrog model with full domestic production</b>	<b>Additional small-scale outbreak models with full domestic production</b>
<b>INVESTMENT OPPORTUNITY</b>	<b>Greenfield:</b> Setup a new product agnostic packaging facility – most African countries do not have existing facilities to retrofit`	<b>Brownfield:</b> Expansion of downstream capacity of existing manufacturers	<b>Brownfield:</b> Expand existing downstream capacity to include end-to-end value chain production (incl. drug substance production)	<b>Greenfield:</b> Establish new site producing end-to-end product(s) leveraging novel platform technology (e.g., mRNA)	<b>Brownfield:</b> Expansion of existing manufacturers to incorporate outbreak products into existing plants (incremental investment)
<b>DESCRIPTION</b>	Facility imports unlabeled/labelled filled vaccines (e.g., vials, syringes) from intl' firms and handles labelling, packaging and distribution of finished product	Integration of packaging and labeling activities towards Fill and Finish using existing vaccine manufacturers capacity in other markets	Expansion of existing facilities to include domestic drug substance production capabilities to setup large-scale, end-to-end plants that achieve cost competitiveness for routine products	Smaller footprint facility producing products on novel vaccine technology using (e.g., mRNA) that requires lower CAPEX investment for drug substance production due to process efficiency	Introduce additional production line to existing facility that focuses on outbreak products (e.g., Ebola) for stockpile production
<b>TIMELINES</b>	<b>4 years</b>	<b>4-6 years</b>	<b>5-10 years</b>	<b>5-10 years (1-2 years for small footprint)</b>	<b>5-10 years</b>

**Without substantial innovation, even the most rapid avenues to vaccine production will take ~5 years to come online – although new models are promising**

February 16, 2022  
9:01 AM GMT-3  
Last Updated 4 months ago

Healthcare & Pharmaceuticals

## BioNTech to ship mRNA vaccine factory kits to Africa

By Ludwig Burger



New technological innovations are producing promising options for smaller footprint facilities that can be containerized and replicated in low resource settings. These investment opportunities will likely be limited in number and will have long-time timeline that will be out of scope for many investors. They will however have benefits that accrue broadly.

Healthcare data management and analytics businesses have been a major target for VC investors, with over US\$172M invested in the past five years.

KEY INVESTORS



Companies

Capital raised

Country

Description



US\$61M

EGYPT

Developer of a healthcare platform designed to find and book doctors.



US\$41M

GHANA

Developer of a pharmaceutical data analytics platform and manages prescription drug inventory for pharmacies and their suppliers and helps them to prescribe and locate the medicines they need and report adverse drug reactions.



US\$16M

SOUTH AFRICA

Developer of insurance software for insurers, UMAs, and brokers that is compatible with personal, commercial, life, and corporate lines to optimize operations.



US\$12M

NIGERIA

Developer of an electronic health record platform designed to simplify the process of patient records and hospital management.

**There is strong demand for digitization of healthcare records management from stakeholders across the healthcare value chain with the right policies in place**

**Paper records have hindered the growth of the healthcare sector**

- 01 There is a lack of structured healthcare and insufficient data being captured from hospitals and healthcare centers.
- 02 Lack of transparency on actual state of healthcare in most African countries.
- 03 Paper based files make it hard to draw actionable insights to drive the healthcare sector.



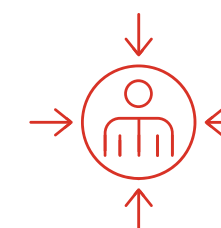
**Healthcare companies are seeking innovative solutions to close the gap**



Healthcare companies are having to build clinical data through patient files and digital case notes from hospitals and surveys as e-records slowly come online.



Companies are building strategic partnerships with electronic health records (EHR) solutions deployed across hospitals and healthcare centers to build out needed healthcare data sets.



There is opportunity for follow on investment into EHR businesses to allow for greater client value add through integration with insurance and other offerings, and potentially market consolidation in the medium term.

*Digitization of medical records has the potential to shape care by letting doctors focus on clinical care while EHR solutions are handled by experts. There is an opportunity for investors to support hospitals to scale up data infrastructure as well as build human capacity.*

*Effective and enabling regulations are key to unlock this trend with the comprehensive and clear data protection and harmonization policies. **The African Union's Digital Transformation Strategy** aims to address several aspects of the regulatory fragmentation. Private sector engagement will be pivotal in ensuring the right policies are implemented.*

Partnerships with entrepreneurial firms on the ground are key to unlocking growth in the burgeoning biomedical research sector across Africa

Developer of a genetic testing platform designed to improve the understanding of the human genome



has attracted

93%

of the US\$49M disclosed investment in the sub-sector as of December 2021



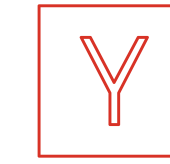
Biomedical research is still a nascent sub-sector in Africa as the economics of treatments designed for African genomes has historically not held up.



However, as interest continues to grow from pharmaceutical companies, pioneering firms are demonstrating a path forward for the sub-sector through partnership

"54Gene has helped to raise awareness about the space - demonstration effects."

CEO & Founder  
Biomedical research company



A key determinant of success among companies in this sub-sector has been accessing Y Combinator's accelerator program which served as an endorsement and attracted other investors



This need for validation from more established institutions demonstrates the hesitancy of other seed investors without an institutional stamp of approval

"We had to grind really hard to get initial cheques in, YC has been a significant validator."

CEO & Founder  
Biomedical research company

**Greater investor risk appetite for early-stage investment opportunities in pioneering companies could unlock innovation – diaspora investor networks offer a route to funding**



For many African entrepreneurs with complex business models that require risk-tolerant capital, **getting initial cheques into their business is extremely difficult**. Friends and family money is not sufficient to scale, particularly in healthcare where businesses tend to be more capital intensive.



And because local capital markets are shallow, **they rely on international investors**, who are less likely to invest due to perceived and real barriers to investment.



There are a few examples of **diaspora and international investment clubs that are providing needed early-stage capital**, particularly to indigenous entrepreneurs on the continent.



Greater willingness from early-stage investors to take on risk **before larger “institutional” early-stage investor validation** would not only unlock investment opportunities, but also provide much needed capital to entrepreneurs across the healthtech space.



A **key investor sub-set to potentially tap into is diaspora** – they have better knowledge of the markets African entrepreneurs are operating in, and therefore could be more willing to take these smaller seed stage bets in “unproven” markets.

» *There are several diaspora investment clubs backing entrepreneurs in building scalable businesses for Africa and its Diaspora.*

» *To date, investments in healthcare have been limited, with many investors viewing healthcare as “too slow” in demonstrating returns compared to Fintech where user growth and market traction can be shown relatively quickly.*

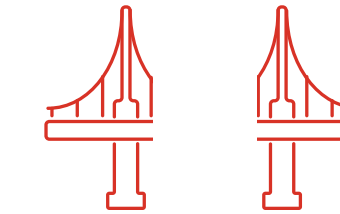
» *Health-tech may also be narrowly viewed as telemedicine which investors view as requiring material behavioral shifts to incentivize adoption.*

**Pivots made by Biomedical research companies exemplify that often tech-forward entrepreneurs must build out more conventional value chains to support their core offerings**



**Biomedical research companies in Africa are setting out to improve drug discovery through wider genetics sequencing...**

- » Only within the last 5 years has it been possible to gather genomic data in Africa, thanks to companies like Yemaachi and 54 Gene.
- » However, through building their operations, they discovered they **could not trust the diagnostics received.**
- » Building the inclusion/exclusion cohorts could not be done locally which **led to samples being sent abroad, which increases costs.**



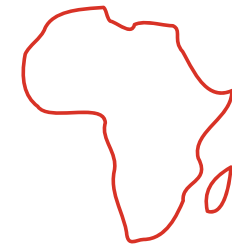
**...but a lack of adequate and reliable infrastructure and expertise triggered backward integration**

- » As a result, many companies in this space are having to **build out their own diagnostics labs in house**, first to service their own business but to also open it up to the market.
- » The wider product market fit was obviously aided by COVID, but also exists for cancer panels and other diagnostic tests.
- » Localizing tests in Africa with a technology lever allowed for in-depth understanding and building capabilities in hospitals as well as governments – as ever there are **wider positive externalities to these infrastructure investments.**



This is a common story in African healthcare – companies are forced into vertically integrating their supply chains (both backward and forward) in order to deliver the quality required for their core business

**The African healthcare investment landscape is dynamic and full of opportunity, with entrepreneurs who want to create impact in underserved markets**



Across the healthcare market in Africa there continues to be new and exciting opportunities for investors, entrepreneurs, and donors to improve access and patient outcomes.



Often, there exists a 'first mover disadvantage.' However, private sector innovation, ingenuity, and commitments to patient success alongside strategic collaboration amongst stakeholders will transform the African healthcare market for the better.



"The entrepreneurial energy in the market is amazing; a lot more space for innovation"

\_\_\_\_\_  
 Founder & CEO  
 Medical Device Company

"DFIs understand our challenges and are trying to find solutions"

\_\_\_\_\_  
 Founder & CEO  
 Clinic network

"We are looking for equal partners to co-create with"

\_\_\_\_\_  
 CEO  
 Healthcare Education Organisation

"We are seeing enough of a healthcare market to be profitable, supported by enabling environment changes in regulation and insurance"

\_\_\_\_\_  
 CEO  
 In-patient care network

"Across the region there are a lot of opportunities to pursue a blue ocean strategy"

\_\_\_\_\_  
 CEO  
 Clinic network

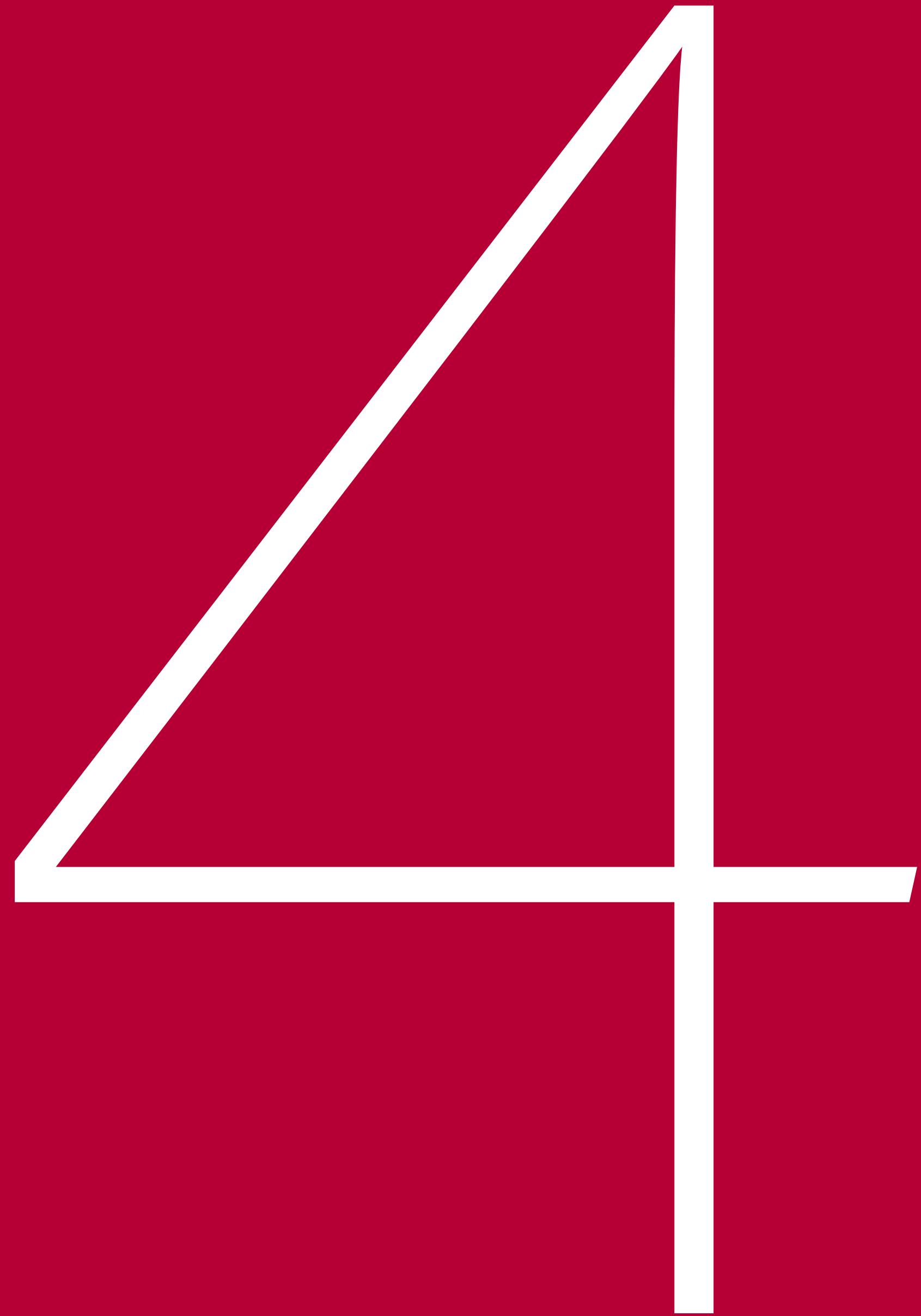
"African VC Funds are getting more excited about Biotech, recognizing the opportunity in the market"

\_\_\_\_\_  
 Founder & CEO  
 Biomedical research company



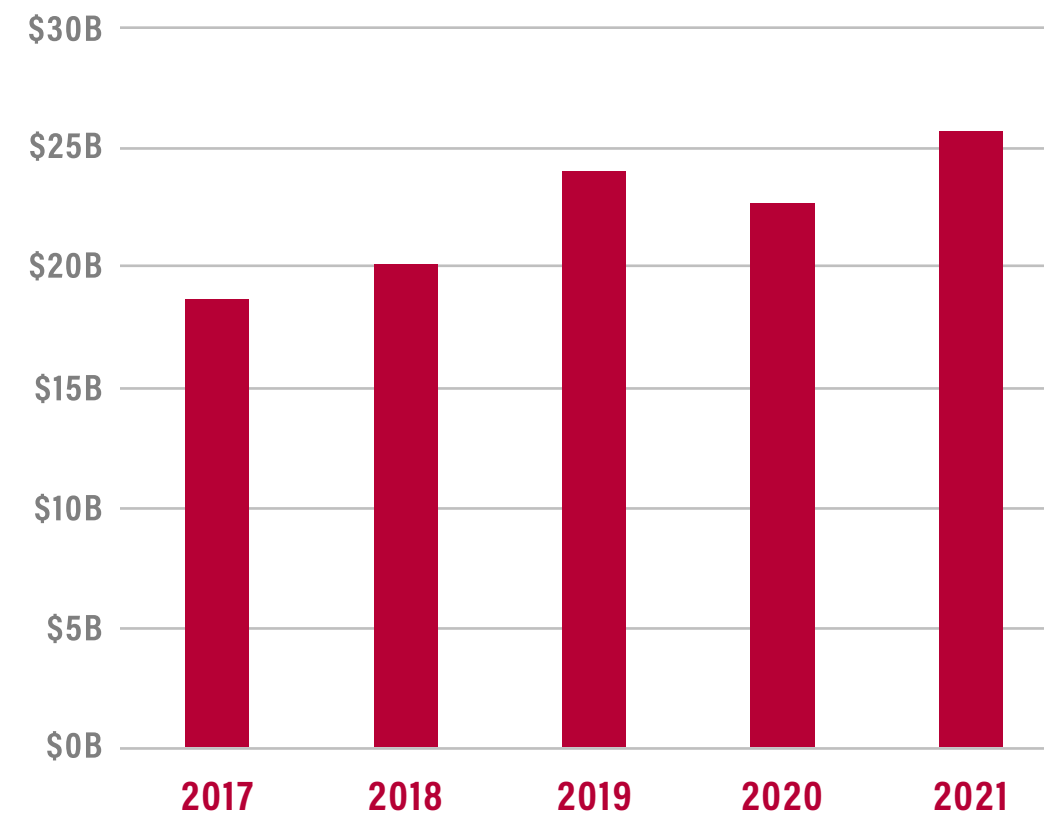
PROSPER AFRICA

» Trade  
Opportunities



Partnerships are key to unlocking trade opportunities in areas of U.S. competitiveness such as medical devices and pharmaceuticals

HEALTHCARE IMPORTS ACROSS AFRICA



Beyond investment, Africa continues to be a robust export market for healthcare companies as well. Imports of pharmaceuticals, medical devices and instruments, and medical equipment grew at a 7% compounded annual growth rate over the last five years - growing to over \$25B in 2021. The U.S. is a major exporter of medical instruments and devices, and pharmaceuticals to the continent. Especially in the pharmaceutical industry, there is room for U.S. exporters to play an even larger role in the African market.

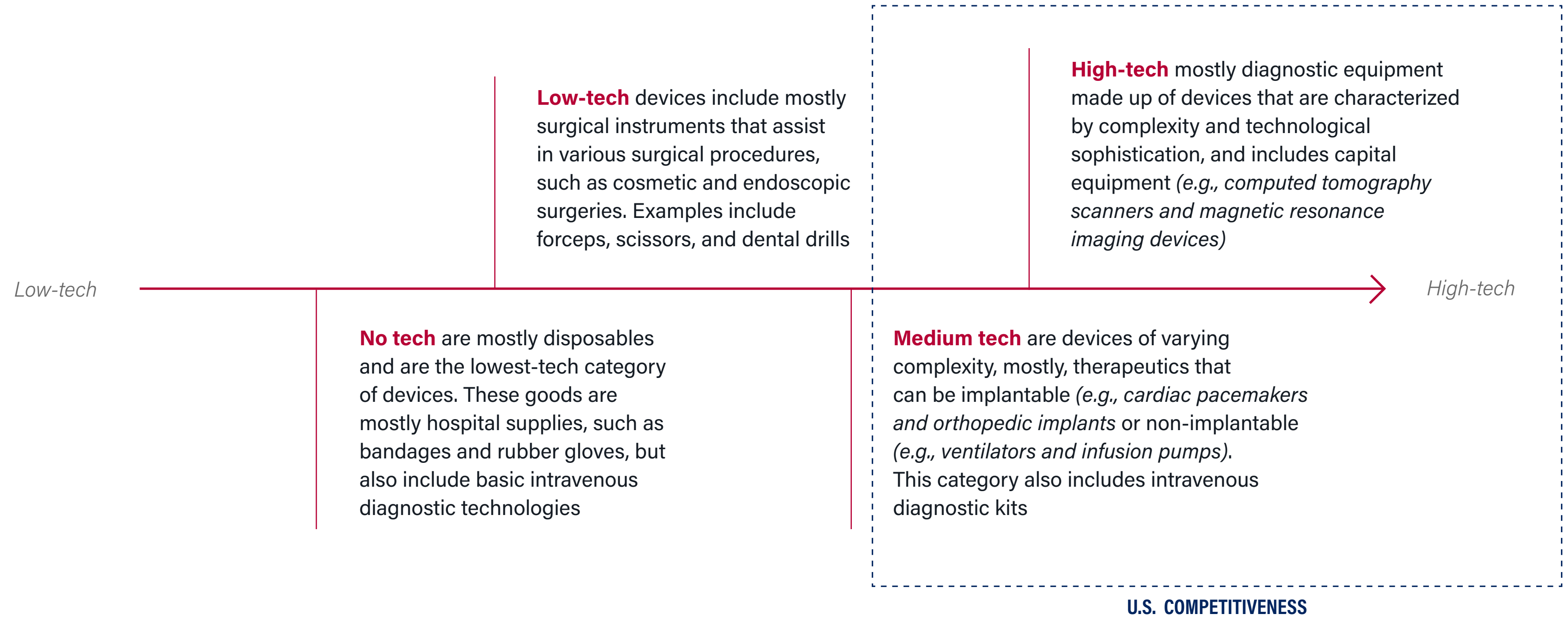
## Medical Instruments and Devices

- » The U.S. is a global leader in high-tech medical devices, and a leading exporter of instruments and devices into Africa
- » However, China is emerging as a key competitor due to investment in manufacturing capacity over the past 7 years
- » U.S. companies should partner with African companies in three key growth segments where demand is likely to be highest: (i) healthcare service providers; (ii) biomedical research; and (iii) manufacturers of medical commodities
- » Additionally, support for secondhand device export including recognized quality standards/certification will build familiarity with U.S. devices

## Pharmaceuticals

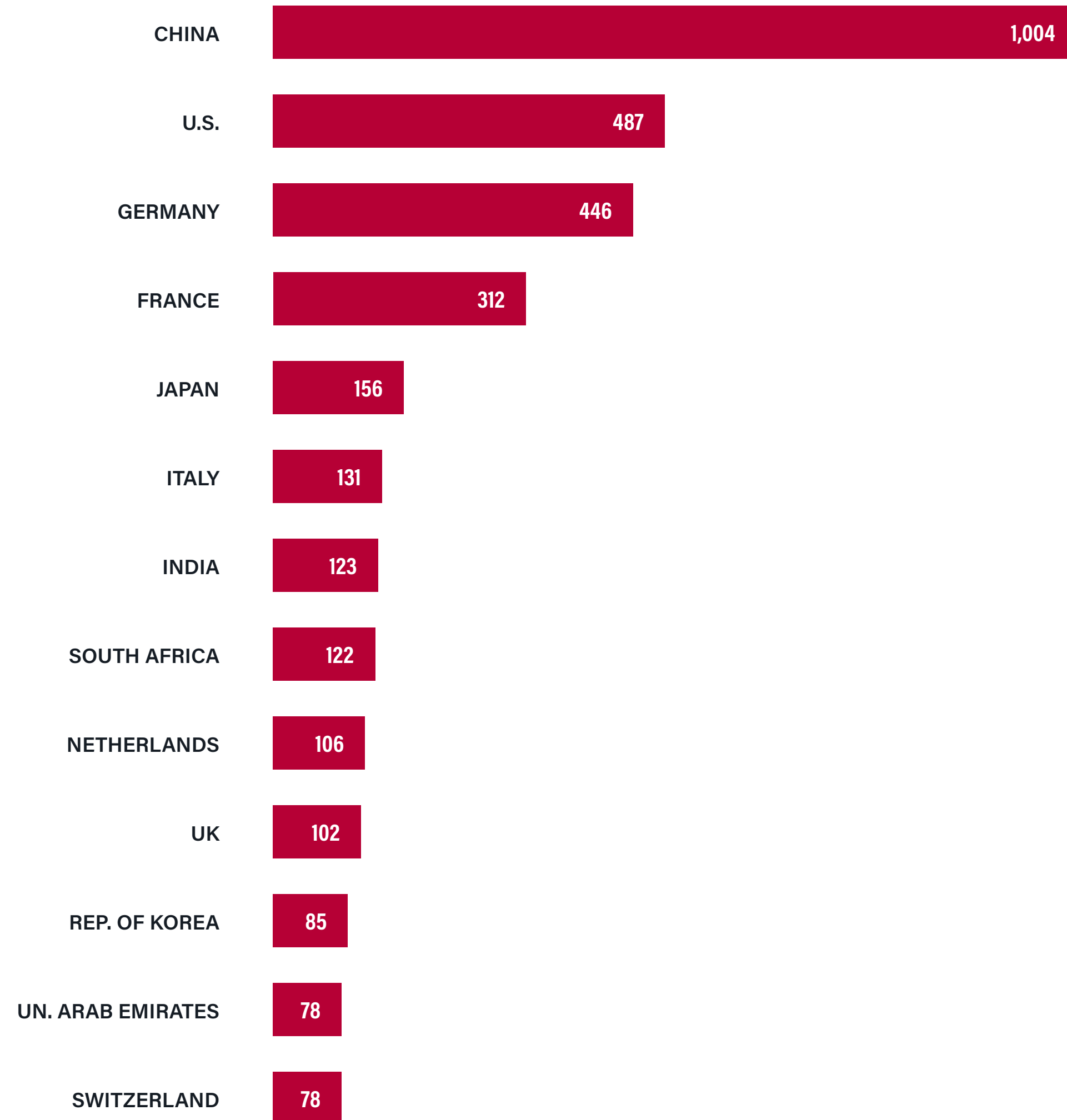
- » U.S. suppliers are the 7th largest exporters of pharmaceutical products to Africa
- » In some markets competitiveness is challenged by higher cost patented product offerings by U.S. manufacturers, as opposed to generic offerings from India and other markets
- » Development of Africa's local manufacturing capacity will allow diversification away from reliance on China and will support high-value add U.S. exports
- » This type of arrangement requires strong partnerships between U.S. and African manufacturers

**U.S. export competitiveness is concentrated in the higher tech end of the medical instruments and devices spectrum**



**The medical instruments and device import market in Africa was ~\$4B in 2021; with China, the United States, and Germany as the leading exporters to the region**

**Origin of Imports (US\$M) for Medical instruments and devices**



- » Imports of medical goods as a whole are highly concentrated across the globe. In sub-Saharan Africa, five source countries supply more than 85 percent of medical goods (China, EU, U.S., India, UK).
- » While China has emerged as the largest source of SSA total imports at 26 percent, the European Union as a whole is the top supplier of medical goods to the region at 36 percent (although its share has been shrinking of the last decade), followed by China and India at 17–18 percent
- » However, in **medical instruments and devices imports, the U.S. is among the top exporters**, pointing to the strong comparative advantage the U.S. has in that sub-sector due to technological advancement and innovation

The same tailwinds that are driving investment opportunities will continue to grow the market opportunity for medical instrument and device imports

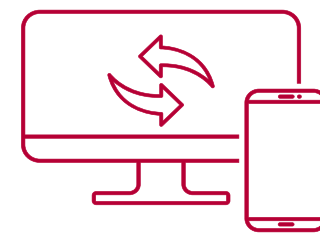
Tailwinds

Opportunities



**Push for universal insurance coverage** to address affordability has **convened various stakeholders** including governments and private stakeholders to discuss and develop risk sharing structures

Increased access to healthcare through **increasing adoption of insurance and universal health coverage** will continue to push demand for medical instruments and devices, especially as care shifts to chronic disease management.



**Continued digitization across the value chain** is driven by need to efficiently service growing populations via more cost effective and innovative ways versus traditional models which are often labor and capital intensive

**Digitally enabled care provision will require sophisticated and connected medical devices**, many of which come from the U.S. In addition, new partners are improving access to these technologies by offering financing and distribution solutions – opening up new client segments for U.S. exporters.



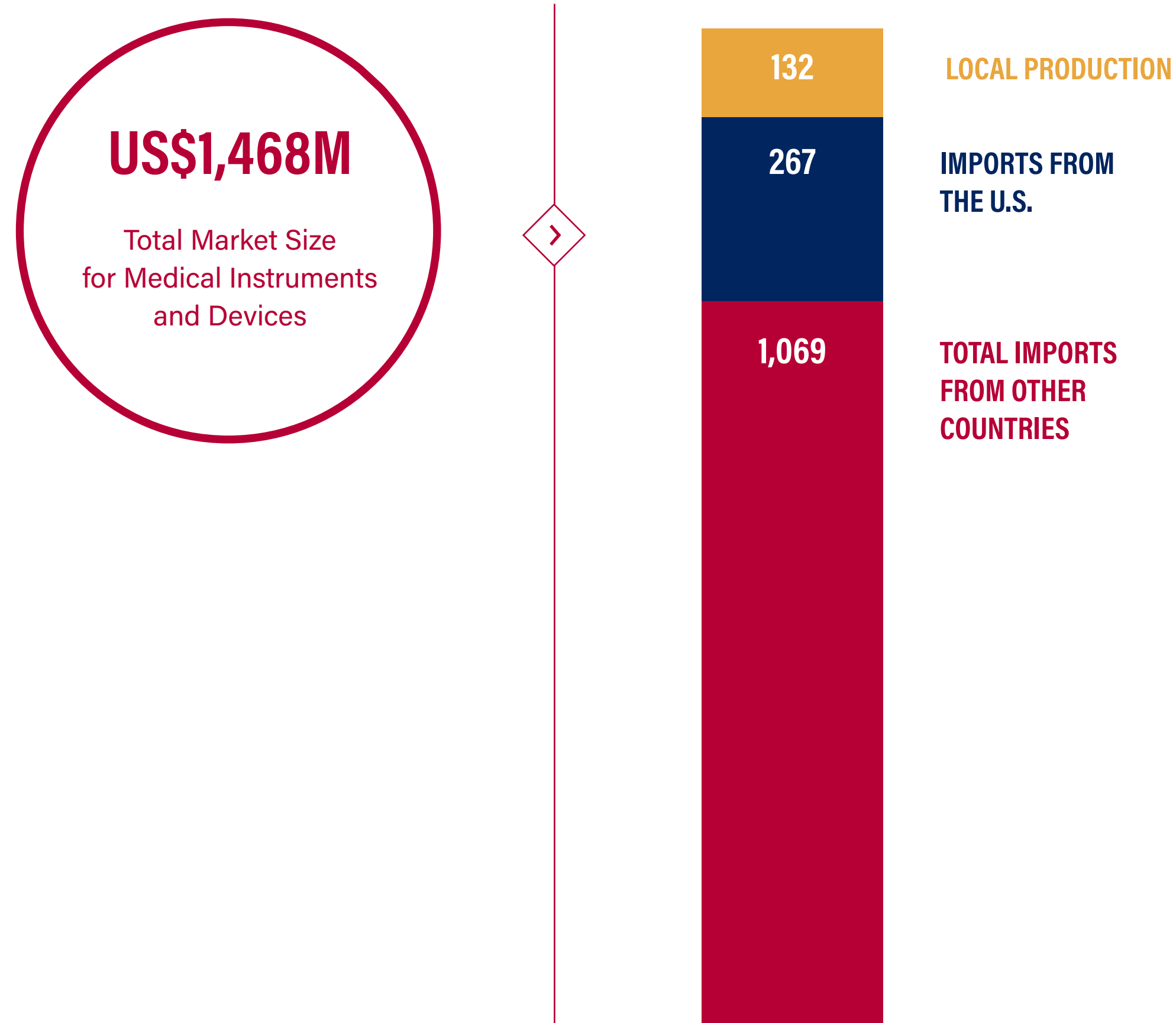
**Increased regulatory harmonization** is creating a single marketplace for goods and services, spurring trade and reducing duplicative market entry costs

**Lowering barriers to trade and reducing duplicative effort for approvals** will continue to make the continent a more attractive destination for exporters.

**South Africa Case Study – Medical instrument and device imports still dominate one of the continent’s most sophisticated medical manufacturing hubs**

Although South Africa has a developed manufacturing industry, it still relies on imports for most of its medical instruments and devices

While a massive trade opportunity, South Africa also showcases the complexity and nuances of medical device procurement in Africa

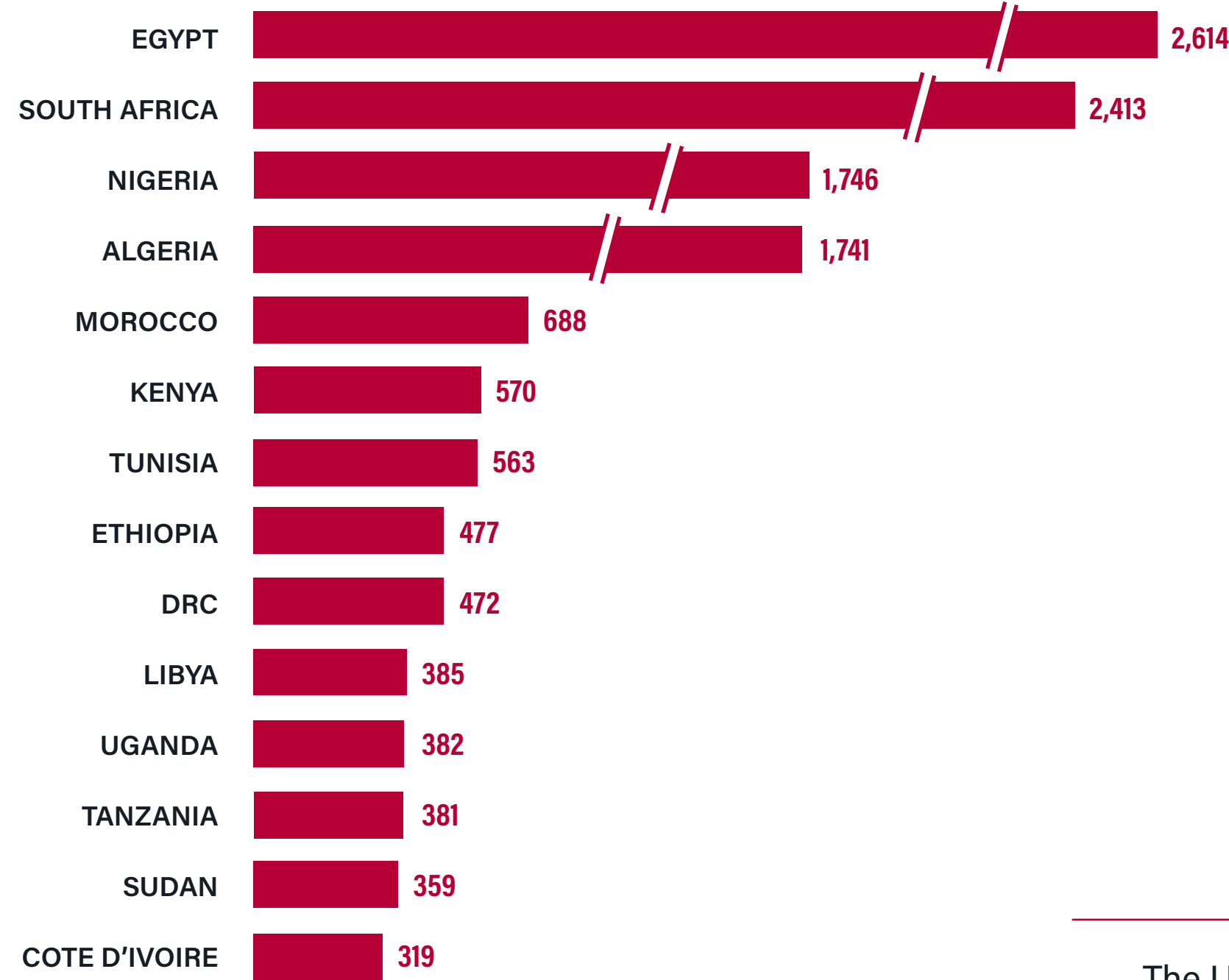


- » The South African Government remains the main purchaser of health equipment with c. 91% of medical equipment being imported.
- » However, the tender process is complicated as procurement is often actioned at the provincial level.
- » The 2017 preferential procurement strategy prioritizes local SMEs which makes it challenging for foreign companies to win government tenders.
- » As a result, sales to the private sector represent the strongest entry point to increase trade to the country.
- » Growth in the sector will be influenced by national legislation related to the government’s national health insurance (NHI) program and increased government spending on healthcare and priority programs.

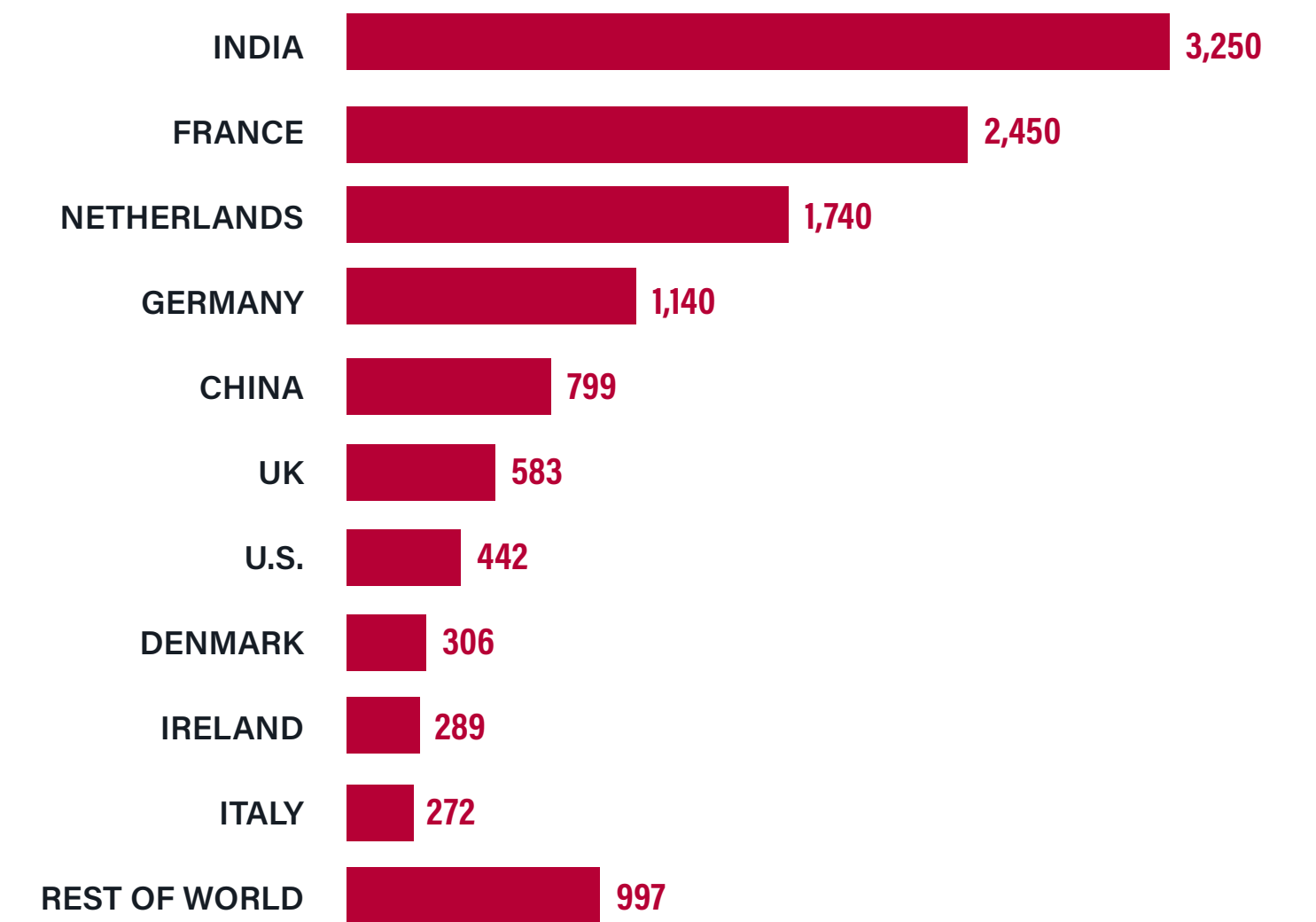
Source: Observatory of Economic Complexity (2019); International Trade Administration; Export.gov, Africa Health, Market Insights: Healthcare Market for South Africa (2020)

**There is opportunity for the U.S. to grow its market share of pharmaceutical exports to Africa**

**Top 15 Pharmaceutical Importers in Africa in 2019 (US\$M)**



**Pharmaceutical Exports to Africa (US\$M)**



The U.S. has an opportunity to leverage its strong global market leadership in pharmaceutical production and distribution to grow its market share in Africa.

The U.S. is consistently ranked in the top five pharmaceutical exporting countries globally, amongst other developed nations, however, still lags in Africa. Leveraging the country's established export capacity and lessons learned from exporting to other countries, the U.S. can continue to deepen its footprint on the continent.

To be sure, most of Africa's pharmaceutical medicines imports are generic drugs, which explains why India is the top exporter. However, the U.S. has capacity to compete with others on patent producers like many European countries

Source: Pharmaceutical Products trade, Observatory of Economic Complexity (2019), Africa: The Launchpad for Indian Pharma, Pharma Boardroom (2018), Pharmaceutical Exports from India, India Brand Equity Foundation (2021)

**Multiple barriers to increased pharmaceutical trade exist across Africa but progress is being made towards overcoming these barriers**



**Regulatory Approvals**

Differences in regulatory approval requirements across countries can lead to duplicative testing requirements and can result in delays in approvals and higher costs to manufacturers. Many regulatory agencies lack adequate training and resources to review submissions, and there can be concerns about the maintenance of confidential business information



**WHAT'S BEING DONE**



**Regulatory Harmonization**

In 2019 the African Union Assembly adopted a treaty to establish the African Medicines Agency (“AMA”) to enhance regulatory oversight across the continent and meet the challenges of access to quality, safe, and efficacious medicines in the continent. AMA aims to reduce the differences in regulatory approval requirements across African markets hence minimizing the administrative hurdles due to having inharmonious compliance standards. This would allow for increased acceleration and simplification of access to medicines.

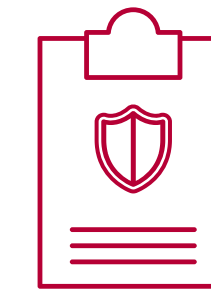


**Multiple barriers to increased pharmaceutical trade exist across Africa but progress is being made towards overcoming these barriers**



**Patent Approvals**

Similarly, patent backlogs and long uncertain processes are common problems. Because the term of a patent usually begins on the date it is filed, approvals can greatly reduce the value of granted patents, which is of greater importance to U.S. exporters, given their focus of on-patent pharmaceuticals. Additionally, many countries prohibit patents on important pharmaceutical innovations, such as new dosage forms or presentations.



**Patent enforcement and data protection**

Among pharmaceutical producers there is a fear that many medicines may not be adequately protected by patents. Many countries do not provide any regulatory data protections on biologic patents in particular.



**WHAT'S BEING DONE**



**Patent law reform**

Countries such as South Africa are undertaking patent law reforms to better improve the efficiency and transparency of the laws that govern the issuance and enforcement of patents.

**Multiple barriers to increased pharmaceutical trade exist across Africa but progress is being made towards overcoming these barriers**



**Pricing**

Many countries artificially depress prices on pharmaceuticals, and while in low-income countries this can be necessary, transparency in how prices are set is often lacking.



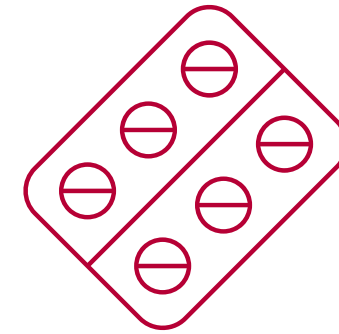
**WHAT'S BEING DONE**



**Engagement of local competition authorities and other stakeholders to improve price transparency**

In 2019, The Government of South Africa, in collaboration with the World Health Organization hosted a forum to encourage countries and civil societies to strive for greater transparency and fairer prices of medicines. At the forum, there was consensus that countries can take an initial step towards fostering greater transparency by sharing price information.

**Multiple barriers to increased pharmaceutical trade exist across Africa but progress is being made towards overcoming these barriers**



**Counterfeits**

It is estimated that 42% of all counterfeit drugs globally are sold in Africa. Counterfeits cause harm to both the generic and patented industries, and ultimately raise the price of medicines by requiring legitimate manufacturers to use considerable resources to ensure safe supply chains. In many countries, existing government policies and enforcement efforts are often insufficient to address counterfeiting issues.



**WHAT'S BEING DONE**

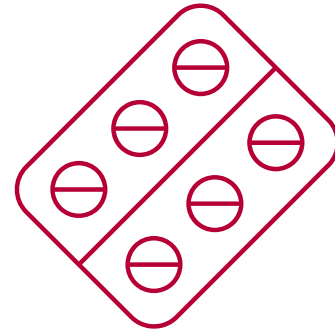


**Innovating medicine tracking and authentication solutions**

To improve supply chain visibility in relation to where medicines are sourced and the various touch points that they go through until reaching the end consumer, African innovative start-ups such as Medsaf and mPedigree are expanding operations across Africa. In addition to platforms that improve traceability by providing end-to-end protection for pharma supply chains, from manufacturers all the way to patients, efforts from organizations like the AMA are likely to further reduce the prevalence of counterfeits across the continent.

**Partnerships can be a route to trade, as local production in Africa for many pharmaceuticals remains a longer-term goal**

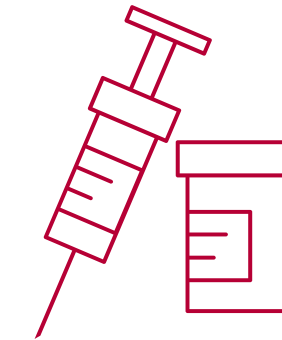
INCREASING TIME HORIZON →



**Downstream model with pack/label only**

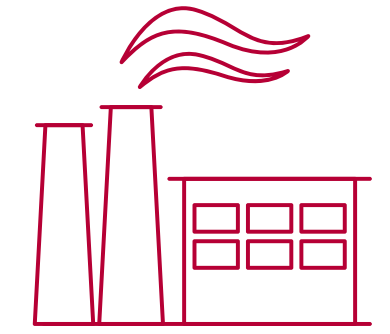
**DESCRIPTION**

Facility imports unlabeled/labelled pharmaceuticals from U.S. firm and handles labelling, packaging and distribution of several finished product



**Downstream model with fill/finish and pack/label**

Integration of packaging and labeling activities towards Fill and Finish using existing manufacturers capacity in other markets



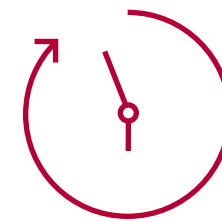
**Full domestic African production**

Expansion of existing facilities to include domestic drug substance production capabilities with aspiration to setup large-scale, end-to-end plants that achieve cost competitiveness for routine products

**TRADE OPPORTUNITIES**

PHARMACEUTICAL GOODS EXPORTS

PHARMACEUTICAL TECHNOLOGY EXPORTS



To be sure, it is not an either-or scenario. Even as African production continues to come online, the U.S. will still need to export innovative and complex pharmaceuticals that cannot be manufactured locally at the requisite scale or quality.

# PROSPER FRICA

A U.S. TRADE AND INVESTMENT INITIATIVE

